

African American Women and Prenatal Care: Effect of Patient-Provider Interaction

by

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### **Dedication**

To the wonderful Yi Clan, the Prosser family, the love of my life, Peter, the women and staff at the prenatal clinic, and above all, my Lord and Savior, Jesus Christ

## **Acknowledgements**

The doctoral process has been an incredible personal and spiritual journey. I have been broken and humbled physically, emotionally, and spiritually multiple times throughout the program. Each time, I've learned that God's grace is sufficient and that His purposes will truly be fulfilled. I have learned to trust, to surrender, and to rejoice in God's sovereignty over all my circumstances. To this end, I am ever more resolved to follow Him and to give Him the praise for all that has and will occur in my life.

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As much as I love my biological family, I am grateful to have been adopted into my "White" family, the Prossers. I will forever remember our "happy place," and dream of being in our "think tanks." G-Ma, you will not be forgotten and I will celebrate with you in heaven one day! Mama Prosser and Rachel, we have done this together! Thank you for the memories and I look forward to spending time in other "happy places."

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“And He has said to me, ‘My grace is sufficient for you, for power is perfected in weakness.’ Most gladly, therefore, I will rather boast about my weaknesses, so that the power of Christ may dwell in me.” – 2 Corinthians 12:9 (NASB)

“Faithful is He who calls you, and He also will bring it to pass.” – 1 Thessalonians 5:24 (NASB)

“... for the joy of the LORD is your strength.” – Nehemiah 8:10 (NASB)

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## ABSTRACT

*Background:* Evidence suggests that poor communication with providers and problematic patient-provider relationships among racial/ethnic minorities plays an important role in health care disparities. Understanding the process of African American women's patient-provider interaction and how it affects the patient-provider relationship, quality of prenatal care, and adherence to prenatal health behaviors is needed.

*Objective:* To describe how patient characteristics (preference for race concordance, perceived racism, and depressive symptomatology) and patient-provider interaction (patient-provider communication and provider discrimination) influence African American women's trust in provider, prenatal care satisfaction, and adherence to prenatal health behaviors (return visit, getting prenatal labs drawn, receiving ultrasounds, and taking prenatal vitamins) using the Interaction Model of Client Health Behavior (IMCHB)

*Methods:* In this descriptive, exploratory study, pregnant African American women (n=204) between the ages of 18-45 years and their providers (n=21) were recruited from a prenatal clinic associated with a large health system in Southeastern Michigan. Surveys were used to assess women and provider perceptions of patient-provider interaction, trust in provider, and prenatal care satisfaction at the initial prenatal visit. Women's adherence to provider recommended prenatal health behaviors at the initial visit were assessed at the subsequent prenatal visit via face to face interview.

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*Results:* Patient-provider communication had a significant positive effect on trust in provider ( $\beta = 0.75, p < .001, R^2 .56$ ) and on prenatal care satisfaction ( $\beta = 0.81, p < .001, R^2 .70$ ). Perceived racism had a negative, significant effect on trust in provider ( $\beta -0.35, p < .001, R^2 .12$ ) and prenatal care satisfaction ( $\beta = -0.26, p < .001, R^2 .05$ ). Preference for race concordance, depressive symptomatology, and provider discrimination did not influence trust in provider, prenatal care satisfaction and adherence to prenatal health behaviors. Adherence to prenatal health behaviors was not predicted by the concepts of patient singularity, patient-provider interaction, trust in provider, and prenatal care satisfaction.

*Conclusions:* High quality patient-provider communication leads to greater trust in provider and higher prenatal care satisfaction among pregnant African American women. Providers need to be aware of the negative effects of racism that can contribute to poor healthcare relationships and lower quality of prenatal care.



## **CHAPTER 1**

### **INTRODUCTION**

Despite advances in medical care, technology, and services, racial/ethnic disparities in pregnancy outcomes have remained unchanged or increased for more than a decade (Hoyert, Mathews, Menacker, Strobino, & Guyer, 2006). Consistently, the rate of infant mortality for black infants has been at least twice as high as white infants; the ratio of death rates between the infants of black mothers and white mothers was 2.3 in 2007 (Miniño, Xu, Kochanek, & Tejada-Vara, 2009). Low birth weight (LBW; <5.8lbs, <2500 grams) remains the leading cause of infant mortality in African Americans (Mathews & MacDorman, 2008). The higher rate of infant mortality of African American mothers as compared to White mothers can be attributed to higher rate of preterm delivery (delivery <37 gestation weeks) and maternal complications (Mathews & MacDorman). In fact, nearly 46% of infant mortality of African American mothers was due to preterm-related causes in 2004, which was 3.5 times higher for African American mothers than for White mothers (MacDorman, Callaghan, Mathews, Hoyert, & Kochanek, 2007).

One of the most important public health measures for improving the pregnancy outcomes since the mid-80's has been expanding and increasing access to prenatal care (Alexander & Kotelchuck, 2001; IOM, 1985). Prenatal care is an important part in ensuring healthy pregnancy outcomes. Prenatal care provides women with the opportunity to be introduced and integrated into the health system, thereby receiving

preventive care, education regarding pregnancy and birth, and special ancillary services that benefit both the mother and the infant.

A key to successful health care encounters is the quality of the patient-provider interaction (communication) and its potential to influence subsequent patient health outcomes (Brown, Stewart, & Ryan, 2003; DiMatteo, 1994; Stewart, 1995; Roter & Hall, 2006; Thompson & Parrott, 2002). However, evidence suggests that African Americans in general, and African American pregnant women in particular, are more likely than white women to receive unequal treatment in health care settings (Beach, Hill-Briggs, & Cooper, 2006; Brett, Schoendorf, & Kiely, 1994; Kogan, Kotelchuck, Alexander, & Johnson, 1994; Lobel, Dunkel-Schetter, & Scrimshaw, 1992; Lu & Halfon, 2003; Thorburn & Bogart, 2005; Wiltshire, Cronin, Sarto, & Brown, 2006). Moreover, for African American women, the most commonly perceived barrier to effective prenatal care among low-income pregnant women concerns communication between the woman and provider (Moore, Ketner, Walsh, & Wagoner, 2004; Bennett, Switzer, Aguirre, Evans, & Barg, 2006). This is especially relevant for African American women who are more likely to have negative past experiences with and mistrust in providers (Gonzalez-Calvo, Jackson, Hansford, & Woodman, 1998; Mikhail, 1999), experiences with discrimination (Dole, Savitz, Siega-Riz, Hertz-Picciotto, McMahon, & Buekens, 2004; Thorburn & Bogart, 2005), and poor patient-provider communication (Bennett et al., 2006; Moore et al., 2004; Teagle & Brindis, 1998).

Research is needed to examine how the intricate and dynamic process of patient-provider interaction during prenatal care may affect racial/ethnic disparities in care and ultimately pregnancy outcomes. Yet few studies have examined the interpersonal

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processes of patient-provider interaction, the *medium* through which prenatal care is actually delivered, and its effect on subsequent process of care, adherence to health behaviors, and patient health outcomes. Further, the majority of research examining patient-provider interaction has lacked a theoretical framework, been limited to primary care (Roter & McNeils, 2003), and have not linked patient-provider interaction to adherence to treatment recommendations and patient health outcomes (Yi, 2008).

### **Purpose**

The purpose of this exploratory, descriptive study is to describe how patient characteristics (singularity) and patient-provider interaction influence African American women's process of care outcomes such as trust in their provider, prenatal care satisfaction, and adherence to prenatal health behaviors. This study is part of a program of research designed to improve the quality of prenatal care through enhancing patient-provider interaction. The long-term goal is to reduce the public health burden of racial/ethnic disparities in pregnancy outcomes. In the following sections, the significance of the study, the conceptual framework and definitions of the key concepts that will be used to guide the proposed study will be presented.

### **Background and Significance**

#### *Disparities in Infant Mortality*

Numerous studies have shown that racial and ethnic minorities in the U.S. receive differential treatment and most often substandard care as compared to the white majority (Institute of Medicine [IOM], 2003). One persistent racial/ethnic disparity that remained unchanged or increased for more than a decade is that of adverse birth outcomes between

African American and Whites (Hoyert, Mathews, Menacker, Strobino & Guyer, 2006; Martin, Kochanek, Strobino, Guyer & MacDorman, 2005; Lu & Halfon, 2003).

Consistently, the rate of infant mortality for African American women has been at least twice as high as white women (Hoyert et al.).

Low birth weight (LBW) (<2500g, 5.8 lbs) and preterm births (infants born before 37 completed weeks of gestation) are the major contributors to the differences seen in racial/ethnic infant mortality rates (Mathews & MacDorman, 2008). In 2005, infant mortality for African Americans continued to remain double as compared to Whites (14.1% vs. 7.3%) and African American mothers had the highest percentage of preterm births (18.4%) out of all the races (Mathews & MacDorman). Likely causes of such pervasive racial/ethnic disparities in birth outcomes include poverty, discrimination, and exposure to stress over the life course of African-American women; instability in partner relationships and mistimed or unwanted pregnancy; urogenital or periodontal infections; possible gene-environment interactions; and inadequate prenatal care (Alexander, Wingate, Bader, & Kogan, 2008; Dailey, 2009; Fiscella, 2005; Lu & Halfon, 2003; Hogan, Njoroge, Durant & Ferre, 2001; Khader & Ta'ani, 2005; Mathews & MacDorman). However, the exact etiology of this disparity remains largely unknown, making it a persistent major national concern (Hoyert et al.).

### *Prenatal Care: An Opportunity*

Following the seminal 1985 Institute of Medicine report concluding that prenatal care reduces LBW, there has been a nation wide public health effort to increase access and availability of prenatal care through expansion of Medicaid for low-income pregnant women and children (Lu, Tache, Alexander, Kotelchuck, & Halfon, 2003; Alexander &

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Kotelchuck, 2001). As a result, prenatal care utilization has risen steadily for African American and White women (Martin et.al., 2005; Kogan et.al., 1998). However, this has not led to a significant improvement in disparities in pregnancy outcomes, and the effectiveness of prenatal care has become the subject of great controversy (Lu et al., 2003).

Some research shows beneficial impact of early initiation of prenatal care on lowering levels of very low birth weight (VLBW) births (Alexander and Kotelchuck 2001). In a recent study, the number of prenatal visits was the strongest predictor of birth weight among African American pregnant women (Dailey, 2009). Yet other evidence suggests that prenatal care *as currently delivered* has little impact on birth weight, preterm delivery, and infant mortality (Martin et al., 2005; Lu et al., 2003; Kogan et al., 1998).

Prenatal care provides women with the opportunity to be integrated into the health system, thereby receiving preventive care, education regarding pregnancy and birth, and special ancillary services for both mother and infant. The debate surrounding prenatal care is not centered on its *value* but on restructuring the delivery and content to include a more contextually integrated model of care that addresses individual, interpersonal, and the community factors that contribute to LBW (Lu et.al., 2003). Importantly, there is some evidence that women who receive high quality communication with their providers during pregnancy are more likely to have favorable pregnancy outcomes. For example, Sable and Herman (1997) found that women who did not receive all of the advice recommended by the Public Health Service Expert Panel on the Content of Prenatal care were more likely to give birth to VLBW infants. A major success of prenatal care has

been reducing the risk of maternal mortality by identifying and providing interventions for women with preexisting medical conditions (McCormick & Siegel, 2001). In a study of 3,467 pregnant women, those who received at least one psychosocial assessment each trimester were significantly less likely to deliver LBW or preterm birth infants as compared to women who did not receive adequate psychosocial services (Wilkinson, Korenbrot, & Greene, 1998).

#### *Racial/Ethnic Disparities in Prenatal Care*

Despite the importance of prenatal care, evidence suggests that African Americans in general, and African-American pregnant women in particular, are more likely than white women to receive unequal treatment in health care settings (Beach, Hill-Briggs, & Cooper, 2005; Brett, Schoendorf, & Kiely, 1994; Kogan et.al., 1994; Lobel, Dunkel-Schetter, & Scrimshaw, 1992; Lu & Halfon, 2003). A review by Lu and Halfon found that African American women are less likely than white women to receive advice about health risks (Kogan); pelvic examinations, blood or urine tests, or screening for hypertension (Lobel et al.); or ultrasound, amniocentesis, and tocolytic treatment (Brett et al.). Although prenatal care utilization has been increasing for both African American and White women (Martin et al., 2005), these disparities in receipt of treatment may indicate differences in quality of care between African American and White women, potentially leading to inadequate prenatal care utilization and poor birth outcomes.

#### *Racial/Ethnic Disparities in Patient-Provider Communication*

Racial/ ethnic differences in patient-provider communication exist for African Americans (Cooper & Roter, 2002). A study revealed that African American women are

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less likely to seek and discuss health information with their providers than white women. This was even more significant in near-poor African American women than non-poor white women (Wiltshire, Cronin, Sarto, & Brown, 2006). Moreover, physicians spend lower proportion of time in providing health education, answering questions, assessing patients' health knowledge, and chatting with African Americans than with white patients (Oliver, Goodwin, Gotler, Gregory, & Stange, 2001). In examining communication patterns, physicians were more verbally dominant, used less patient-centered communication, and exhibited lower positive affect with African Americans than with white patients (Johnson, Roter, Powe, & Cooper, 2004; Cooper-Patrick, Ford, Vu, Powe, Steinwachs, & Roter, 2000). Also, physicians were more likely to adopt a "narrowly biomedical" communication style with African American and poorer patients (Roter, Stewart, Putnam, Lipkin, Stiles, & Inui, 1997).

Consciously or unconsciously, patient-provider communication may be influenced by race concordance of the provider and the patient; hence affecting patient ratings' of care, satisfaction, and utilization of healthcare. In several studies, race concordant relationships (African American patients with African American providers) were predictive of higher satisfaction with care (LaVeist & Carroll, 2002; LaVeist, Nuru-Jeter, & Jones, 2003; Saha, Komaromy, Koepsell, & Bindman 1999). However, other studies show that race concordance does not predict satisfaction or use of health care services (Saha, Arbelaez, & Cooper, 2003) and that patient's preference for race concordant relationships may be more predictive of determining a positive patient-provider relationship (Malat & Hamilton, 2006; Schnittker & Liang, 2006).

Greater insight is needed to understand how racial/ethnic differences in patient-provider communication affect outcomes of care and contributes to disparities in healthcare among African Americans. Yet, few studies have examined patient-provider communication during prenatal care among African American women and their providers. Patient-provider communication during prenatal care may not provide a biological mechanism of infant mortality, but understanding the process of patient-provider communication will help providers and patients improve their communication skills, reduce racial/ethnic disparities in patient-provider communication and ultimately, reduce racial/ethnic disparities in healthcare.

### **Conceptual Framework**

The modified Interaction Model of Client Health Behavior (IMCHB) (Cox, 1982; Cox, 1984; Cox, 2003) provides a basis for this study (Figure 1). The IMCHB is a patient-centered model that explains the relationship between patient singularity, patient-provider interaction, and resulting patient outcomes (Cox, 1982; Cox, 1984; Cox, 2003). For the purposes of this study, the term patient will be used to reflect client.

The basic tenets of the IMCHB are that a relationship exists between patient singularity (unique characteristics of an individual), patient-provider interaction, and resulting patient health outcomes. The focus of IMCHB is on the multidirectional process by which individual patient singularity and the patient-provider interaction affect health outcomes. The theoretical assumptions of the IMCHB regard the patient as a unique, holistic, and dynamic individual capable and able to make choices regarding their health behavior (Cox, 1982, 1984). The patient is viewed as an active participant in the healthcare process who initiated the patient-provider relationship (Cox, 1982).



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According to the IMCHB, the more tailored the intervention is to the uniqueness of the individual patient (singularity), the greater the likelihood of positive health outcomes (Cox, 2003).

The IMCHB provides a useful framework for practice-oriented research and has been tested with a variety of racial/ethnic groups in different settings such as children to elderly, in hospital and community settings including pregnant patients receiving prenatal care (Cox & Roghmann, 1984; Saha, Arbelaez, & Cooper, 2003) and African American women of childbearing age (Abel & Miller, 1997). However, the entire model has not been rigorously tested and few studies have focused on testing on the elements of patient-provider interaction (Carter & Kulbok, 1995; DiNapoli, 2003). To date, only three studies have examined patient-provider interaction elements of IMCHB (Benkert, Hollie, Nordstrom, Wickson, & Bins-Emerick, 2009; Brown, 1992; Bear & Holcomb, 1999).

Because the focus of the study is on pregnant African American women's communication barriers with providers and issues of discrimination, the following areas of IMCHB have been modified: (1) the concept of provider discrimination was added to patient-provider interaction, (2) the elements of provider singularity were added to reflect the uniqueness of provider's characteristics, and (3) intermediate outcomes, have been added to the model to reflect a more precise relationships among the process of care, health behavior, and health outcomes. The following sections define the three broad concepts of the modified IMCHB and its associated variables that will be investigated (see Figure 1): (1) patient singularity, (2) provider singularity, (3) patient-provider interaction, and (4) intermediate outcomes.

### *Patient Singularity*

Patient singularity refers to the unique characteristics that define an individual (Cox, 1982, 1984, 2003). It is composed of background and dynamic variables. The background variables include the person's demographic variables, previous healthcare experience, environmental resources, and social influences (Cox, 2003). The dynamic variables are considered to be components of an individual that are more amenable to change during the patient-provider interaction. They consist of cognitive appraisal (e.g. an individual's knowledge, attitudes, beliefs regarding a behavior or concern), intrinsic motivation (e.g. feelings self-determination or competency), and affective response (e.g. an individual's emotional response to a concern) (Cox, 1982, 1984, 2003).

According to IMCHB, the variables of patient singularity act simultaneously, cumulatively, and interdependently to have a direct effect on health outcomes and indirect effect on outcomes through patient-provider interaction (Cox, 1982). The IMCHB further purports that cognitive appraisal refers that individuals will act "in accordance with their perceptions of reality," (Cox, 1982, p. 50). For the purposes of this study, the women's cognitive appraisal is conceptualized as preference for race concordant relationship, perceived racism, and depressive symptomatology.

### *Provider Singularity*

Similar to variables of patient singularity, the variables of provider singularity refer to the unique characteristics that define the provider. Provider singularity will include demographic variables such as gender, race/ethnicity of the provider, years of practice, and provider affiliation for the patient (patient likability).

### *Patient-Provider Interaction*

The constructs of patient-provider interaction are the crux of the model since it influences both patient singularity and health outcomes. Broadly, the elements of patient-provider interaction describe the interpersonal processes between the patient and the provider from the provider's perspective during a clinical encounter (Cox, 1982, 1984, 2003). This includes affective support, health information, decisional-control, and professional/technical competencies (Cox, 1982, 1984, 2003). According to the IMCHB, patient-provider interaction acts continuously and reciprocally with patient singularity to influence health outcomes (Cox, 1982). For this study, the concept of provider discrimination was added to the construct of patient-provider interaction. Since communication occurs reciprocally, each variable of patient-provider interaction will be presented from both the provider's and patient's perspectives.

*Affective Support.* Affective support from the provider's perspective is the process of attending to a patient's emotional states and building an affiliative bond (Cox, 1982, 1984, 2003). Affective support is the foundation for all the other elements of patient-provider interaction (Cox, 2003). Consistent with Cox's definition, affective support in this study, is the provider's ability to elicit and be responsive to patient's concerns and whereby forming a relationship with the patient. Attending to patient's emotional states and building an affiliative bond requires the provider to listen, show care and concern, encourage patient to ask questions, treat the patient with respect, and spend adequate time to meet the patient needs.

From the patient's perspective, affective support is the patient's perception of provider's responsiveness to meet the patient's concern and ability to build a patient-

provider relationship. Thus, effective health communication occurs when the patient perceives that the provider listens, explains, shows respect for what she says, spends enough time, and is satisfied with the communication that occurred (USDHHS, 2003).

*Health Information.* Gathering patient's history and providing pertinent health information to patients are key components of the health care interview. Health information according to the IMCHB is the provision of useful information to the patient (Cox, 2003). Providing useful information requires clear delivery of relevant health information in a way that the patient understands the benefits for adherence to the treatment plan. Information alone is not enough to change patient behavior, but it interacts with variables of patient singularity and other variables of patient-provider interaction to influence health behaviors (Cox, 1982). Consistent with Cox's definition, from the provider's perspective, health information is the process of explaining care processes to the patient during the patient-provider interaction. From the patient's perspective, health information is provider's ability to explain, share, and provide useful information, and respond to patient's questions.

*Decisional Control.* According to the IMCHB, decisional control represents provider's acknowledgment in patient's ability to participate in making decisions towards their health (Cox, 2003). It is also creating an environment that is supportive of autonomy and increasing patient's sense of responsibility, competency, and self-determination (Cox, 1982, 2003). Decisional control from the patient's perspective refers to patient's willingness to participate in making decisions in their healthcare to influence positive health behaviors (Cox, 1982). Similar to Cox's definition, decisional-control in this study is defined as the extent to which the patient participated in the decision-making

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process and the extent to which the provider included the patient in the treatment plan of care.

*Provider Discrimination.* Discrimination refers to “unjustifiable negative behavior toward a group or its members” (Myers, D.G., 1996, p. 391). Discrimination is often associated with racism. Racism is defined as “beliefs, attitudes, institutional arrangements, and acts that tend to denigrate individuals or groups because of phenotypic characteristics or ethnic group affiliation” (Clark, Anderson, Clark, & Williams, 1999). The term racial discrimination is used interchangeably with discrimination and racism (Giscombe & Lobel, 2005).

In a report by the Institute of Medicine (2003), “Unequal Treatment,” care process factors such as provider bias, stereotyping, and uncertainties in decision-making were suggested for potentially contributing to disparities in care. Strong evidence exists to support that African Americans perceive racial discrimination within the patient-provider interaction (IOM, 2003; LaVeist, Nickerson, & Bowie, 2000; Lillie-Blanton, Brodie, Rowland, Altman, & McIntosh, 2000). Thus, provider discrimination is consistent with IMCHB conceptual definition as a variable in patient-provider interaction. For this study, provider discrimination within the patient-provider interaction is defined as patient’s perceived unfair treatment by their provider based on their race and other demographics characteristics such as gender, income, education, marital status, and number of prior children.

### *Intermediate Outcomes*

The IMCHB focuses on five broad health outcomes: (1) utilization of healthcare services, (2) clinical health-status indicators, (3) severity of health care problem, (4)

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adherence to the recommended-care regimen, and (5) satisfaction with care. The IMCHB outcomes are related conceptually, but may or may not be interrelated depending on the research objectives and not all outcomes are behaviorally oriented (e.g. satisfaction with care) (Cox, 2003).

As stated previously, for the purposes of this study, the broad health outcomes of IMCHB have been modified into *intermediate* outcomes and health outcomes to show a clear relationship with the various outcome measures used in this study. The intermediate outcomes that will be investigated are process of care outcomes of trust in provider and prenatal care satisfaction, and adherence to health behaviors.

*Process of Care Outcome of Trust in Provider.* Although trust is not explicitly stated as an outcome in the IMCHB, trust has been shown to be a key outcome in the patient-provider relationship and predictive of satisfaction with care and adherence (Hall, Dugan, Zheng, & Mishra, 2001). Trust has been conceptualized as a multi-dimensional measure and has included the dimensions of provider competence, honesty, confidentiality, and fidelity (Stepanikova, Mollborn, Cook, Thom, & Kramer, 2006). Multiple definitions of trust exist, but most agree that trust is the “optimistic acceptance of a vulnerable situation in which the truster believes the trustee will care for the truster’s interests” (Hall et al.).

*Process of Care Outcome of Satisfaction.* Similarly to trust, multiple definitions of satisfaction exist. Satisfaction is frequently associated as an indicator of quality of care (IOM, 2001), patient’s perceptions of the care experience, and how care was delivered (Aharony & Strasser, 1993; Carr-Copeland & Hudson-Scholle, 2000). According to Cox (2003), satisfaction with care is defined as the “patient’s appraisal of adequacy of a

provider's response to a healthcare problem and extent to which the patient's expectations are or are not met" (p. E95). Key provider communication behaviors influencing patient satisfaction are treating the patient with care and concern, provider competence, continuity of care, asking a balanced mixture of biomedical and psychosocial questions, and expressing patient and provider expectations (Brown, Stewart, & Ryan, 2003). When patients are satisfied, they are more likely to adhere to treatment and presumably this would influence other outcomes, such as improvements in patient's health outcomes (Aharony & Strasser, 1993; Cleary & McNeil, 1988).

Although trust has been strongly correlated with satisfaction, Thom and colleagues (1999) showed that trust was a predictor of adherence, continuity of care, and satisfaction even after adjusting for baseline satisfaction after six months. But after adjusting for initial trust, baseline satisfaction was only predictive of subsequent satisfaction (Thom, Ribisl, Stewart, & Luke, 1999). Thus, evidence exists to show that trust and satisfaction are two distinct concepts and that trust is a predictor of satisfaction. Thus, satisfaction and trust are separate measures for this study.

*Adherence to Health Behaviors.* Adherence to health behaviors refers to the extent that a patient follows the provider's recommended treatment plan. One component of adherence is utilization of healthcare such as return visits. For this proposed study, adherence to health behaviors such as return visit and patient's adherence to provider's recommended treatment plan during the initial prenatal care will be examined.

### *Comparing Perceptions*

Communication is a reciprocal process between the patient and the provider. Although both parties participate in the conversation, each person's perception of one

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another may influence communication behavior. Comparing the patient and provider perceptions of health care interactions may provide additional information on the relationship between patient-provider interaction, process of care, and adherence to prenatal health behavior outcomes. For instance, when patient and provider perception of respect was assessed after a clinical encounter, patients that were least respected by their physicians were also least likely to perceive themselves as being highly respected (Beach, Roter, Wang, Duggan, & Cooper, 2006). In the communication analysis, physicians provided more information and had higher positive affect for those patients who they moderately and highly respected (Beach et al.).

Recent research also suggests that provider behavior and decision-making may contribute to racial/ethnic disparities in care (van Ryn & Fu, 2003). Providers like all humans are prone to unconscious stereotypes. These unconscious stereotypes or perceived images of certain group of people may lead to bias and thereby potentially influencing providers' behavior and decision making (van Ryn & Fu).

Another study showed that physician perceptions of patients seen after a postangiogram differed on patient race and SES. Logistic regression analyses showed that physicians perceived African American patients as less intelligent than Whites even after controlling for patient sex, age, income, and education and rated low and middle socioeconomic status (SES) patients as less intelligent, possessing less self-control, and being more irrational than high SES patients (van Ryn & Burke, 2000). In the same study, physicians reported being less likely to be friends with African Americans than Whites (van Ryn & Burke). The authors did not report separate results for White physicians and nonWhite physicians. These differences in provider perceptions of



patients may influence communication behaviors and ultimately impact process of care, health behaviors, and health outcomes.

### *Summary*

The relationships of concepts in IMCHB among patient and provider singularity, patient-provider interaction, and subsequent intermediate outcomes will be examined. Provider singularity was added to represent how the uniqueness of each person that is involved in the communication process influences the patient-provider interaction. With recent focus on healthcare disparities and issues of unequal treatment during the patient-provider encounter, the concept of provider discrimination was added to patient-provider interaction. Finally, the broad elements of health outcomes in the IMCHB have been divided into intermediate and health outcomes to display a more clear relationship of intermediate outcome variables investigated.

Limited research exists to show how variables of patient singularity, patient-provider interaction influence process of care and health behavioral outcomes among African American pregnant women. Thus, this research uses a theoretical framework to investigate multiple outcomes, including trust in provider, prenatal care satisfaction, and adherence to prenatal health behaviors to understand if and how patient singularity and patient-provider interaction effects intermediate outcomes of African American pregnant women.

### **Significance of the Study**

Communication is central to all clinical encounters. The impact of quality patient-provider communication in improving quality of care and the health status of individuals

is recognized in Healthy People 2020 (US Department of Health and Human Services [USDHHS], 2009). Specific recommendations include improving patient-provider relationships through effective communication skills training and increasing the proportion of patients who are satisfied with their providers' communication skills (USDHHS, 2003). In addition, this research addresses National Institute of Nursing Research (NINR) scientific goals of reducing health disparities and improving quality of care, and is congruent with the mission of Agency for Healthcare, Research, and Quality (AHRQ), which includes improving the outcomes and quality of health care.

### **Research Questions and Specific Aims**

Evidence suggests that poor communication with providers and problematic patient-provider relationships among racial and ethnic minorities may play an important role in health care disparities (National Healthcare Disparities Report, 2008). To further understand patient-provider interaction and its subsequent outcomes among African American women, the following specific aims will be examined:

- *Specific Aim 1:* Examine whether patient singularity (preference for race concordance, perceived racism, and depressive symptomatology) predict trust in provider, satisfaction with prenatal care, and adherence to prenatal health behaviors.
- *Specific Aim 2:* Examine whether patient-provider interaction (affective support, health information, decisional control, and provider discrimination) predicts African American women's trust in provider, satisfaction with prenatal care, and adherence to prenatal health behaviors.
- *Specific Aim 3:* Compare differences and similarities between patients' and

providers' perceptions of patient-provider interaction

- *Specific Aim 3a*: Compare differences and similarities between patients' and providers' perceptions of trust in provider and satisfaction with prenatal care
- *Specific Aim 3b*: Examine the relationships among outcomes of trust in provider, satisfaction with prenatal care, and adherence to prenatal health behaviors

The findings from this study can help providers and patients understand the influence of patient-provider communication and its impact on trust in provider, prenatal care satisfaction, and adherence of prenatal health behaviors. This will help providers and patients improve their communication skills, decrease feelings of unequal treatment, and provide quality prenatal care that will ultimately affect pregnancy related outcomes.

## CHAPTER 2

### Literature Review

In this chapter, the literature on the pertinent concepts of patient singularity and patient-provider interaction that have influenced process of care and health behavior outcomes among African American women receiving prenatal care and in primary care settings will be discussed. The following sections discuss and critique the relevant research on the concepts of the modified IMCHB examined in this study.

### Introduction

*Barrier to Prenatal Care: Poor Patient-Provider Communication.* Structural and interpersonal dynamics between providers and patients have been cited as barriers to utilizing prenatal care (Moore, Ketner, Walsh, & Wagoner, 2004, Johnson et.al., 2007, York, Grant, Tulman, Rothman, Chalk, & Perlman, 1999). Specifically, a commonly perceived barrier to quality prenatal care among low-income pregnant women concerns ineffective communication between the woman and provider (Bennett, Switzer, Aguirre, Evans, & Barg, 2007; Moore et.al.; Teagle & Brindis, 1998). This is especially relevant for African American women who are more likely to have negative past experiences with and mistrust in providers (Gonzalez-Calvo, Jackson, Hansford & Woodman, 1998; Kaplan et.al., 2006; Mikhail, 1999; York et.al.), and experiences with discrimination (Benkert & Peters, 2005; Dole et.al., 2004; Watson, Scarinci, Klesges, Slawson, &

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Beech, 2002). Thus, one recommendation in reducing disparities is to improve patient-provider interaction (Roter & Cooper, 2003).

Despite evidence showing racial/ethnic disparities in technical aspects of prenatal care services, such as fewer counseling and prenatal tests and increasing reports of poor patient provider communication, limited studies have examined interpersonal processes of patient-provider interaction, the medium through which prenatal care is actually delivered and its effects on process of care and health behavior outcomes.

### **Patient Singularity**

#### *Preference for Race Concordance*

Differences in racial/ethnic patient-provider communication have been documented. Physicians regardless of race were more verbally dominant, used less patient-centered communication, and exhibited lower positive affect with African Americans than with White patients (Johnson, Roter, Powe & Cooper, 2004). Similarly, African American patients had lower positive affect than that of White patients even after controlling for demographic characteristics regardless (Johnson et al.). To improve cross-cultural communication, some researchers have promoted racially concordant (African American patients with African American providers) patient-provider relationships (Saha et al., 2003; Saha, Taggart, Komaromy, & Bindman, 2000). The underlying rationale for promoting racially concordant relationships is that individuals from similar cultural backgrounds would be less likely to misinterpret symptom cues, avoid stereotypes, and provide quality and culturally relevant care; ultimately, reducing racial/ethnic disparities in quality of care outcomes (Brach & Fraser, 2000; Horner et al., 2004; LaVeist, Nuru-Jeter, & Jones, 2003; LaVeist & Carroll, 2002; LaVeist & Nuru-

Jeter, 2002; Saha, 2000; IOM, 2003; van Ryn & Burke, 2000).

There are however, conflicting results related to the effect of race concordance on satisfaction. Support for race concordance influencing satisfaction has generally used data from the 1994 Commonwealth Fund Minority Health Survey (1994 Commonwealth Fund Survey) (LaVeist & Carroll, 2002; LaVeist & Nuru-Jeter, 2003). The 1994 Commonwealth Fund Survey was a nationally representative sample of adults greater than 18 years old residing in households with telephones within the 48 continental United States. Only a sub-sample (n=2720) of those reporting usual source of care were included in the ordinary least squares regression analyses.

Although middle age adults (41-50 years old), education (High school and Post graduate degree), and ability to choose a doctor were all significant predictors of patient satisfaction, the ability to choose a doctor contributed most to the variance in satisfaction after adjusting for other covariates. Thus, the 1994 Commonwealth Fund Survey show that respondents who had a *choice* in selecting their physicians were more likely to choose physicians from their own race and that race concordant relationships were associated with higher satisfaction of care than those in discordant relationships for all racial/ethnic groups (LaVeist & Carroll; LaVeist & Nuru-Jeter; Saha et al., 2000).

The clinical study conducted by Cooper et al. (2003) supports the findings from 1994 Commonwealth Fund Survey. To demonstrate whether race concordance affects patient provider communication and patient ratings of providers' participatory decision-making style, and satisfaction with care, a cohort study using pre- and post-visit surveys and audiotape recording of the visits was conducted (Cooper et al.). Audiotapes were analyzed using Roter Interaction Analysis System (RIAS) (i.e. overall process of the

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visit, patient centered orientation, and emotional tone of the visit). Differences in directly observed patient-provider communication measures and patient ratings of care were evident in the race concordant relationships. Race concordant visits were significantly longer (2.2 mins) in duration, had slower speech speed in the conversation of both the physician and the patient, and patients had higher positive affect scores as compared to race discordant visits (Cooper et al.). Post visit surveys showed that patients in race concordant visits had higher satisfaction scores, rated their providers as more participatory, and had greater likelihood of recommending their provider to a friend.

However, the differences observed in patient-provider communication measures did not mediate the relationship between race concordance and self-report patient ratings of care. Thus, the authors proposed that factors other than patient-centered communication such as patient and provider attitudes and preferences might mediate the relationship between race concordance and ratings of care (Cooper et al.). This is one limitation of the RIAS as it does not allow for subjective or perceptual assessment of the patient provider interaction. In addition, the coders were white women. Subtle cultural factors such as excitement in the tone of voice may not always be indicative anger or discontent among African Americans which may not have been detected by the White women coders. Furthermore, the authors did not indicate if the recruited patients had a choice in selecting their physicians, reason for the medical visit, or measure other interpersonal processes of care (e.g. respect, perceived discrimination, etc.) that may be more pertinent to African Americans due to past historical and personal experiences with discrimination in the healthcare system.

In contrast to the studies that used the 1994 Commonwealth Fund Survey, race

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concordant relationships did not explain differences in satisfaction among minority groups surveyed in the 2001 Commonwealth Fund's Health Care Quality Survey (Saha et al., 2003). In this study, the authors explored the effect of race/ethnicity on patients' satisfaction with care and use of recommended health services. Race concordance did not significantly predict greater satisfaction for specific or collective minority groups. Rather, physician behaviors such as listening (OR 1.77, CI 1.17, 2.68,  $p \leq .05$ ), using participatory decisionmaking (OR 1.81, CI 1.05, 3.13,  $p \leq .05$ ), and treating patients with respect (OR 2.83, CI 1.65, 4.83,  $p \leq .05$ ), were predictors of satisfaction. Logistic regression analysis showed that African Americans were about twice as likely to be satisfied when physicians listened well and involved them in decisions. When physicians treated them with respect, African Americans were almost three times more likely to report being satisfied compared to those who were not treated with respect. In addition, African Americans were least likely to report a preference for race concordant relationships as compared to other racial/ethnic groups (Saha et.al.).

According to Saha et al. (2003), the inconsistency of the result could have been attributed to a potential misclassification of the race concordance variable. In the 2001 Commonwealth Fund Survey, the respondents based their questions on the last provider they saw which may not have been the person's regular provider that formed the base of their opinions. Another explanation as suggested by the authors could have been due to changes in providers' behaviors and attitudes towards African American patients due to more awareness of healthcare disparities as there was a seven year gap between the two surveys (Saha et al.). Differences could also have been attributed to how satisfaction was measured. The 1994 survey used 5 questions to measure how satisfied the respondents



were regarding their interaction with the provider. In contrast, the 2001 survey used one question to measure globally how satisfied the respondents were with their overall care.

Although both the 1994 Commonwealth Fund Survey and the 2001 Commonwealth Fund Survey were conducted on a nationally representative household sample of adults (>18y.o) with a telephone, there were socioeconomic (SES) differences of the respondents surveyed in 2001 as compared to those in 1994. For instance, in the 2001 survey as compared to the 1994 survey, a greater percentage of African Americans were less educated ( $\leq$  high school 55.8% vs 17.7%), uninsured (20.6% vs 10.8%), and had a low preference (5.6%) for race concordant relationships (1994 data did not report the percentage of African Americans who preferred race concordant relationships). Since race concordance was predictive of higher satisfaction to those who had a choice and preferred race concordance, it may be that those who are of lower SES do not prefer race concordant physicians. For African American patients that have the option to choose their physician's race, it is reasonable to speculate that these patients may be satisfied with their care due to being with a physician of their choice rather than benefiting from same race encounters.

To further investigate the role of preference for race concordance, three studies used the 1999 Kaiser Family foundation Survey of Race, Ethnicity, and Medical Care: Public Perceptions and Experiences. Similar to the 1994 and 2001 Commonwealth Fund Surveys, the 1999 Kaiser survey was a telephone survey of a national random sample of 3,884 adults over 18 years old living in the continental United States (Malat & Hamilton, 2006; Malat & van Ryn, 2005; Schnittker & Liang, 2006).

Schnittker and Liang (2006) examined beliefs about the effects of concordance,

preferences for concordance, and the effects of concordance in patient physician interaction. Findings revealed that only 21.7% of African Americans respondents preferred an African American physician. Furthermore, race concordance predicted a positive patient provider interaction (e.g. provider asked questions  $\chi^2 (1, N=1046) = 73.18, p < .01$ , explained things  $\chi^2 (1, N=1046) = 57.49, p < .01$ , paid attention to you  $\chi^2 (1, N=1043) = 56.81, p < .01$ , received appropriate treatment services  $\chi^2 (1, N=1045) = 59.06, p < .01$ ) among only those who prefer concordance and that majority of treatment disparities were driven by a small subset of sample who were in discordant relationships but *prefer* concordance (Schnittker & Liang).

So then, who prefers race concordance? Studies have shown that African Americans who have had personal experiences with discrimination from non-African American physicians (Malat & Hamilton, 2006; Malat & van Ryn, 2005), those in the highest tercile of income (Malat & Hamilton) and those who were concerned about future unfair treatment were more likely to prefer race concordant relationships than those without a preference (Malat & Hamilton; Schnittker & Liang, 2006). On the other hand, respondents who were greater than 55 years old, who trusted in their providers, who were of lower SES, and who believed that discrimination could occur with same or different-race providers were least likely to prefer race concordance (Malat & Hamilton; Saha et al., 2003; Schnittker & Liang). The concept that discrimination could occur either way refers to intra-discrimination in which discrimination occurs in same race interactions through a different mechanism such as using a power/social status differential to treat another unfairly (Malat & Hamilton).

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The effect of racial concordance on satisfaction with care is a complex phenomenon. In the studies reviewed, inconsistencies in results are evident and dominated by studies using secondary analyses of national data sets. The random sampling method of the national surveys strengthens the studies, but the data sets are limited by previously constructed variables, respondents who owned a telephone, and those who had usual source of medical care. Another key finding in the race concordance studies was the value of preference. Race concordance had the most effect on respondents who prefer race concordant relationships; thus, it appears that African Americans are not a homogenous group nor does it appear that African Americans automatically choose providers who are racially similar.

In summary, the effect of race concordance in affecting healthcare outcomes is inconclusive. Future studies should specifically assess for preference for race concordance in a clinical setting when investigating the effects of race concordance on satisfaction. Since only one study examined the effects of race concordance on patient-provider interaction and outcomes of care (Cooper et al., 2003), more studies are needed to see if preference for race concordance influences patient-provider interaction and if specific patient and provider behaviors may mediate/moderate the effects of race concordance on satisfaction and other patient behavioral outcomes in a clinical setting.

### *Perceived Racism*

Perceptions' of inferior care and mistrust in providers and the healthcare system for ethnic minority groups, and specifically for African Americans, stem from a history of racial discrimination and other medical abusive treatment by white providers (Randall, 1996; King, 1998). For instance, real or perceived discrimination experienced by African

American patients lead to lower satisfaction of care ratings (LaVeist, Nickerson, & Bowie, 2000), delays in seeking treatment (Hobson, 2001), and produce negative health and mental outcomes (Williams, 1999; Kessler, Mickelson, & Williams, 1999). In the 1999 Kaiser Family Foundation Survey, African Americans were four times more likely to perceive discrimination in medical settings, to mistrust healthcare systems (LaVeist, Nickerson & Bowie, 2000) and to believe they received lower quality of healthcare (Lillie-Blanton et al., 2000).

Several studies have shown the prevalence of discrimination in healthcare and have associated perceived discrimination with satisfaction with care (Benkert, Peters, Clark, & Keeves-Foster, 2006; Chen, Fryer, Phillips, Wilson, & Pathman, 2005; Fowler-Brown, Ashkin, Corbie-Smith, Thaker, & Pathman, 2006; LaVeist, Nickerson, Bowie, 2000), healthcare utilization (Blanchard & Lurie, 2004; Bird & Bogart, 2001; Burgess, Ding, Hargreaves, vanRyn, & Phelan, 2008; Crawley, Ahn, & Winkleby, 2008; Gary et al., 2005; Sheppard et al., 2008; Trivedi & Ayanian, 2005), and adherence to medical recommendations (Penner et al., 2009; Stark-Casagrande, Gary, Maiese, Batt-Turner, Wang, & Brancati, 2005; LaVeist, Gaskin, & Cooper, 2007).

However, a majority of the studies investigating perceived discrimination and process of care outcomes and adherence to medical recommendations have been conducted retrospectively using secondary data analyses or community-wide telephone interviews. A few clinical studies have associated the significant negative effects of perceived discrimination with satisfaction with care (Benkert et al, 2006), nonadherence to medical recommendations (Penner et al., 2009), and poor birth outcomes (Dailey, 2009). The following paragraphs will discuss these clinical studies in depth.

Benkert et al. (2006) tested a mid range theoretical model, Perceptions of Racism and Mistrust in Health Care (PRMHC), to explore the effects of perceived racism, cultural mistrust, and trust in providers on satisfaction with care. Data was collected from a convenience sample of 145 urban dwelling African Americans receiving care at two different primary care clinics. One clinic was a nurse managed clinic (NMC) and the other, a joint managed clinic with both nurse practitioners (NPs) and medical residents.

Perceived racism was measured using the Racism and Life Experience Scales (RaLES). The RaLES is a nine item instrument (cronbach's alpha = 0.81) that conceptualizes racism as it is "experienced individually and directly and also collectively, vicariously, and transgenerationally" (Benkert et.al.). Cultural mistrust was measured using the Cultural Mistrust Inventory (CMI). The CMI is a 48-item instrument (Cronbach's alpha = 0.93) that measures African Americans' "mistrust and suspiciousness of Whites in four general areas (politics and law, interpersonal relations, education and training, business and work)" (Benkert et al.).

Structural equation modeling showed that perceived racism had a positive and direct effect on cultural mistrust and explained 34% variance in cultural mistrust. Then, cultural mistrust had a negative and direct effect on trust in providers and explained 12% of variance in trust. Finally, trust in providers had a positive and direct effect on satisfaction with care (variance in satisfaction explained by trust was not provided). All the variables explained 22% of variance in satisfaction. However, initial model fit analyses showed that it was a "marginal" fit. Thus, the model was re-specified and a path from perceived racism to satisfaction was added to the model. The final model with the addition of path from perceived racism to satisfaction increased the satisfaction variance

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from 22% to 27% (Benkert et al., 2006).

Although social desirability was not assessed, Benkert et al. showed that past experiences with racism and cultural mistrust negatively affect trust in providers which then influences satisfaction. Thus, it would be important to know what provider communication behaviors contribute to patient's perceptions of discrimination that inhibits or promotes trust, satisfaction, and health behavior outcomes. If objective provider communication behaviors are identified that promote trust or reduce perceived discrimination, then providers could be trained more effectively to interact with patients to influence positive outcomes in patients. In addition, more studies are needed to link the effects of perceived discrimination to healthcare outcome measures such as satisfaction, adherence to treatment regimen, and return of subsequent visits using prospective data.

A more recent longitudinal study examined the relationships among perceived discrimination, adherence to medical recommendations, patient-provider interaction, and patient self-reported health of African American patients in a primary clinic setting (Penner et al., 2009). Perceived discrimination was assessed by asking participants if they had ever experienced discrimination in each of the seven areas (in their jobs, when applying for a job, in dealings with the police, in education, obtaining housing, when dealing with neighbors, and in their medical treatment). Patient-provider interaction was assessed using the 14-item Patient-Centeredness Scale (PCC) and one additional satisfaction item regarding the current patient-provider interaction. The self-reported adherence measures and general health measure that were assessed at the initial visit were followed up four and 16 weeks after the initial visit.

Penner and colleagues showed that perceived discrimination was significantly and negatively and moderately correlated with general health measure at pretest ( $r=-.28$ ,  $p<.05$ ), 4 week ( $r=-.37$ ,  $p<.05$ ), and 16 week ( $r=-.28$ ,  $p<.05$ ) follow-up. Perceived discrimination was also significantly and negatively correlated with patient satisfaction with the visit ( $r=-.24$ ,  $p=.005$ ). In contrast, higher perceived discrimination was correlated with less past adherence ( $r=-.26$ ,  $p=.002$ ), less adherence at 4 week follow-up ( $r=-.27$ ,  $p=.004$ ), and at 16 week follow-up ( $r=-.31$ ,  $p=.003$ ) (Penner et al., 2009).

Mediational analyses revealed that perceived discrimination had a significant direct negative effect on general health at 16 week follow-up ( $\beta=-.23$ ,  $p=.05$ ) and a significant indirect negative effect on general health at 16 weeks mediated through decreased general adherence and decreased adherence at the 4 week follow-up ( $\beta=-.08$ ,  $p<.05$ ). This suggests that patients' who reported higher perceived discrimination were less likely to adhere to physician's recommendations, and lower adherence was associated with poorer general health (Penner et al., 2009). This is one of the first clinical studies to examine longitudinally the relationships among perceived discrimination, adherence, and patient's health.

Perceived discrimination has also been significantly associated with adverse birth outcomes (Dailey, 2009). Using a prospective cohort design, Dailey investigated the role of social stressors (perceived discrimination and trauma exposure), personal resources (spirituality and social support), SES, perinatal health behaviors, and medical conditions on birth outcomes among 119 pregnant African American women. Perceived discrimination was assessed using the Everyday Discrimination Scale.

Descriptive analyses showed that 86% of the women experienced some form of

generalized discrimination. From the reasons cited, racism was the most cited form of discrimination (n=60, 56%), followed by gender (n=47, 44%), and education or income level (n=42, 39%). Bivariate correlations identified five predictors of lower birth weight infants at  $p \leq .15$ : tobacco use, number of prenatal visit, and discrimination due to age, religion, and physical disability. These variables were then entered into hierarchical regression analysis to identify the significant predictors of low birth weight. Hierarchical regression analysis showed that the full model was significant,  $[F(4,99)=8.08, p < .001]$ , and explained 25% of the variance in birth weight. The final model showed that use of tobacco ( $\beta = -.17, p=.05$ ), number of prenatal visits ( $\beta = .305, p \leq .001$ ), and discrimination due to age ( $\beta = .178, p=.04$ ), and physical disability ( $\beta = -.262, p \leq .001$ ), were significant predictors of low birth weight. The number of prenatal visits accounted for the largest variance in birth weight ( $sr^2 .10, p \leq .001$ ) (Dailey, 2009).

Within the clinical studies investigated by Benkert et al. (2006) and Penner et al. (2009), the patients were recruited from primary care clinics and were older African American adults (M=49 years, range of 27-68 years; M=43.7 years, range was not reported). Although both Penner and Benkert examined the effects of perceived discrimination on satisfaction with care, only Benkert et al. showed the direct effects of perceived discrimination on satisfaction with care. This could be due to the different measures used to examine perceived discrimination (Racism and Life Experience Scale vs Brown's unfair treatment in seven areas of life). In addition, different outcome variables were examined such as trust in provider (Benkert et al., 2006) and adherence to medical recommendations (Penner et al., 2009). Penner et al. examined patient-provider interaction, but the results were not reported.



The study by Dailey (2009) was conducted in a prenatal care clinic setting, but did not use a theoretical framework and did not assess for patient-provider interaction and its relationship to process of care outcomes. Thus, research is still limited on investigating the relationship among patient-provider interaction, trust in provider, satisfaction, and adherence to medical recommendations. Future studies should use a theoretical framework to guide the investigation of perceived discrimination and its relationship to patient-provider interaction, including provider discrimination, and how multiple care and health behavior outcomes are related.

### *Depressive Symptomatology*

Increasingly, evidence points to the influence of psychosocial factors on poor pregnancy outcomes (Lu & Halfon, 2003; Lu et al., 2003). A recent report by the American College of Obstetricians and Gynecologists (ACOG) (2006) recommended addressing psychosocial issues (e.g. non-biomedical factors) that are pertinent to women and their families during prenatal care. In a recent study conducted by Johnson et al. (2007), high risk characteristics associated with inadequate prenatal care utilization among African American women were identified using Classification and Regression Trees methodology. African American women who reported psychosocial problems (e.g. personal problems, stress, depression, family problems, etc.) and those who did not participate in the Women Infant Children Program had the top two risk factors associated with inadequate prenatal care utilization (Johnson et al.).

One psychosocial factor that has been associated with difficulties in patient-provider communication is depressive symptomatology (Scarinci, Beech, & Watson, 2004). Using data collected from a larger national survey on the psychological well-being

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of African American women, Scarinci et al. (2004) examined the relationship between depression and patient-physician interaction. Findings from the hierarchical regression analyses showed that African American women with higher depression scores on the Center for Epidemiologic Studies Depression Scale (CES-D) (>16) and lower income (\$20,000-\$39,000) reported lower patient-provider interaction overall. In addition, even after controlling for demographic variables, as CES-D scores increased, the greater the likelihood of women reporting difficulty in talking to providers, reluctance to discuss with problems with physicians, keeping needs and problems to oneself, and likelihood of changing providers due to dissatisfaction.

However, the authors combined half of the elements of patient-physician interaction as a sum score and did not provide individual results of which physician behavior was most affected by depressive symptomatology. It is important to distinguish if it is depression that influences the negative patient-provider interaction or if certain provider attitudes/behaviors have an additive effect on poor patient-provider interaction. More studies are needed to understand how depressive symptomatology influences patient-provider interaction and ultimately affect satisfaction with care and patient outcomes using prospective data.

### **Provider Singularity**

#### *Provider Gender*

One variable that has clearly been shown to affect provider communication is provider gender. Evidence shows that female providers spend more time with their patients (Mechanic, McAlpine, & Rosenthal, 2001), ask more questions, and engage in more psychosocial discussions than male providers (Roter & Hall, 2006). This can be

partially explained as studies have shown that patients disclose more psychosocial information and provide more biomedical information to female providers than male providers (Roter & Hall, 2006). In a recent study conducted by Beran et al., female patients paired with male providers were more likely to report problems of being treated with less respect than female patients with female providers (Beran, Cunningham, Landon, Wilson, & Wong, 2007). This is of particular saliency as African Americans in general report being treated with respect as the greatest predictor of overall satisfaction (Saha et al., 2003).

#### *Provider Race*

As stated previously, the research on race concordance and its positive effects on care are mixed. However, differences in communication do exist. Cooper et al. (2003) have shown that race concordant visits (African American patients with African American providers) were significantly longer in duration by 2.2 minutes, had slower speech speed in the conversation of both the physician and the patient, and patients had higher positive affects scores as compared to race discordant visits.

#### *Years of Practice*

In a recent systematic review of the relationship between clinical experience and quality of healthcare, the authors examined 62 articles from 1966 to 2004 (Choudhry, Fletcher, Soumerai, 2005). From the 62 articles, over half of the articles (32 articles) showed a negative association between experience and performance for all outcomes assessed (i.e. evaluation of knowledge, adherence to standards of care for diagnosis, screening, or prevention, therapy, and health outcomes). Thus, physicians who were

older and had longer years in practice were less likely to know factual knowledge, adhere to standards of care, and provide care associated with poorer health outcomes (ie. greater mortality) (Choudhry et al., 2005).

### **Patient-Provider Interaction**

The care process factors of affective support, health information, decisional-control, and discrimination are the concepts of patient-provider interaction in the modified IMCHB. These elements are critical components of the model since they influence elements of both patient singularity and subsequent intermediate and health outcomes. Limited studies have examined African American women's communication with their prenatal care providers. To date, only one study was found that specifically described the content and process of communication during prenatal care; however, it was with women of advanced maternal age (>33 year old) and over 75% of the population was white (Roter, Geller, Bernhardt, Larson & Doksum, 1999).

Studies that have investigated patient-provider interaction of minority women receiving prenatal care have been conducted retrospectively using computer-assisted telephone interviews (Korenbrodt, Wong & Stewart, 2005). Thus, these surveys were not completed immediately after the prenatal visit, patient-provider interaction was not observed or measured directly, and health behavior outcomes were not measured.

#### *Affective Support*

Attending to the patient's emotional states requires the provider to listen, provide comfort/reassurance, acknowledge patient's feelings, and spend adequate time to meet the patient needs. When African American women perceived that the provider spent

adequate time, greater satisfaction resulted (Handler, Rosenberg, Raube & Lyons, 2003; USDHHS, 2003). However, evidence shows that patients in race discordant relationships with providers have shorter visits than in race concordant relationships (Cooper et al., 2003).

Building an affiliative bond requires mutual respect. In a national sample of African Americans, adequate listening (OR 1.77, CI 1.17, 2.68,  $p \leq .05$ ), involving patients in decision-making (OR 1.81, CI 1.05, 3.13,  $p \leq .05$ ), and treating patients with respect (OR 2.83, CI 1.65, 4.83,  $p \leq .05$ ) were physician behaviors predictive of greater satisfaction (Saha, Arbelaez, & Cooper, 2003). Respect was the greatest predictor of overall satisfaction among variables examined (Saha et al.). Similarly, in the 2001 Commonwealth Fund Survey, Beach et al. (2005) examined the relationship between treated with respect and being involved in decisions to satisfaction, adherence, and optimal use of preventive health services. Descriptive statistics showed that majority (76%) of African Americans reported that the provider treated them with great deal of respect and dignity. Even after controlling for demographics and other covariates, logistic regression analyses revealed that participants who reported being treated with great deal of dignity were more likely to be satisfied than those who reported less than great deal of dignity (Beach et al.).

Only a few studies have investigated the role of respect in patient-provider interaction during an actual clinical visit. In a descriptive clinical study, Hill and Doddato (2002) showed that being treated with respect was the greatest predictor of satisfaction. Respect explained 57.1% variance in overall satisfaction with the care received at an urban underserved African American community health clinic. Satisfaction was then

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correlated with intent to return ( $r=.638$ ) and intent to recommend services provided at the nursing managed center ( $r=.725$ ) (Hill & Doddato). However, a person's intention may not always correlate with actual behavior to utilize health services.

Beach and colleagues (2006) examined how accurately patients' perceived physician's respect for them and how respect may have been communicated during a clinical setting. Post-visit surveys were used to assess for physicians' ( $n=30$ ) level of respect for each patient. In turn, patients ( $n=215$ ) also completed a post-visit survey to assess for their perceptions of the level of respect they thought their physicians had for them. Patient-provider communication as analyzed by Roter Interaction Analysis System (RIAS) included information giving, rapport building, physician verbal dominance, and global affect.

Linear mixed effects modeling revealed that patient characteristics significantly associated with higher physician reported respect was age (older than 65 years) and how well the physician knew the patient (knows patient very well). Those that were least respected by their physicians as determined by the questionnaire were also least likely to perceive themselves as being highly respected. In the RIAS communication analysis, physicians provided more information and had higher positive affect for those patients who they reported as having moderate and high respect after adjusting for clustering of patients within physicians and patient age. However, after controlling for effects of how well the physician knew the patient, patient's age, and clustering of patient within physicians, differences in positive affect was not seen, but information giving still remained significant (Beach et al.).

This study is an excellent example of how provider's attitudes and perceptions

were detected by patients and these attitudes correspond with objective provider communication behaviors. Unfortunately, the authors did not associate levels of respect with process outcome measures such as satisfaction or behavioral outcome measures of healthcare utilization. Does being treated with respect affect patient outcomes? Additional research is needed to further investigate the effects of respect on outcomes of care such as trust in provider, satisfaction, and adherence to health behaviors.

### *Health Information*

Prior research has shown that patient process outcomes are related to provision of health information. Pregnant African American women were more satisfied with prenatal care when providers engaged them by asking and answering questions, explaining procedures, and spending more time with them (Handler, Rosenberg, Raube, & Lyons, 2003). Korenbrot, Wong, & Stewart (2005) conducted a computer assisted telephone interviews of African American, Latina, and White women receiving prenatal care in four community health clinics that predominantly served Medicaid patients. The purpose of the study was to determine if provision of health promotion advice and psychosocial assessment was related to improved interpersonal care and increased satisfaction with care. Interpersonal care was measured using the Prenatal Interpersonal Processes of Care (PIPC).

The PIPC was adapted from the Interpersonal Processes of Care (IPC) tool which was originally validated for minority and lower-income patients in a different study. Using the same pool of sample as the Korenbrot et.al. (2005) study, Wong et al. (2004) used factor analyses with maximum likelihood extraction and oblique rotation to establish the dimensions of the PIPC. The final three dimension of PIPC consisted of

communication (i.e. empowerment/self-care, elicitation/responsiveness of patient's problems, explanation of processes of care), patient-centered decision-making, and interpersonal style (i.e. perceived discrimination, respectfulness/emotional support, friendliness and courteousness). Psychometric properties such as internal consistency reliability and convergent validity were established for all three factors across the entire sample except for U.S born Latinas.

Least squares regression models showed that receiving health promotion advice and providing psychosocial assessments were significant predictors of all three components of the PIPC. For instance, the more providers asked the women about their psychosocial problems, higher PIPC ratings resulted. Initially, all PIPC components predicted satisfaction, but after adjustment, the decision-making component was no longer significantly associated with greater satisfaction. Communication ( $\beta = .20$ ;  $p < .05$ ) and interpersonal style ( $\beta = .81$ ;  $p < .0001$ ) explained 48% of the variance in satisfaction. Interpersonal style was the strongest predictor of satisfaction. In addition, mediation analyses revealed that neither health promotion advice nor psychosocial assessment had a measurable direct (independent) effect on satisfaction. Receiving health promotion advice and psychosocial assessment was predictive of higher PIPC ratings which then was associated with higher satisfaction (Korenbroet et al., 2005).

In a meta-analysis conducted by Stewart (1995), provider behaviors during history assessment such as inquiring about patient's understanding, perceptions, expectations, and feelings about the impact of the problem as well as expressing support and empathy were associated with reduction in emotional and psychological distress and symptom resolution. When providers delivered clear information in a supportive manner,



were involved in shared decision-making, and agreed with the patient regarding the nature of the problem and the need for follow-up, improved patient health outcomes were observed (Stewart, 1995).

Disparities, however, exist in provision of information based on race and SES. In several studies, providers offered more information and explanations to higher-class patients than lower-class patients (Pendleton & Bochner, 1980; Bain, 1979, Waitzkin, 1985). A recent study revealed that African American women are less likely to seek and discuss health information with their providers than white women (Wiltshire, Cronin, Sarto, & Brown, 2006). Physicians have been found to spend lower proportion of time in providing health education, answering questions, assessing patients' health knowledge, and informally talking with African Americans than with white patients (Oliver, Goodwin, Gotler, Gregory, & Stange, 2001). Further, African American women are less likely to receive advice about health risks (Kogan, Kotelchuck, Alexander, & Johnson, 1994). These findings are concerning as research has shown that when patients receive more information, they are more likely to be satisfied than those who receive less information (Jackson, Chamberlin, & Kroenke, 2001; Krupat, Fancey, & Cleary, 2000).

### *Decisional Control*

The IOM report, *Crossing the Quality Chasm* (2001), has encouraged patients to be *active* participants in the process of care and in clinical decision-making to the extent they wish. Participatory patient-centered approaches have resulted in better patient outcomes (Stewart et al., 2000) and greater patient satisfaction (Kaplan, Greenfield, Gandek, Rogers, & Ware, 1996). For instance, patients who participated in the treatment decisions in managing their diabetes with their provider had better sugar control levels

and lower functional limitations than those did not participate in the decision-making process (Greenfield, Kaplan, Ware, Yano, & Frank, 1988). However, studies have shown that African Americans rated their physicians as having lower participatory decision-making style (Cooper, Gallo, & Gonzalez, 1999; Kaplan, Gandek, Greenfield, Rogers, & Ware, 1995) and perceived lower participatory visits with white physicians than with African American physicians (Cooper et al., 1999).

A key caveat to decision-making is patient's preference or willingness to participate and be involved with their care. To investigate this preference, Levinson et al. (2005) used the 2002 General Social (GSS) population based survey to understand the public's preferences for participation in decision-making and to examine the demographic variables that influence people's preferences. Face-to-face interviews of English speaking adults (>18years old) living in U.S. households were conducted. The authors used the Charles Model of Decision Making as a theoretical framework to formulate three questions to assess for preferences in decision-making. Three questions measured knowledge (prefer to rely on provider's knowledge rather than obtaining information through self means), options (prefer provider offers me choices and asks for my opinion), and decision (prefer to leave decisions about my medical care up to my doctor) domains of decision-making. Preferences for decision-making differed based on demographic characteristics. African American and Latino respondents preferred to leave decisions to their provider than Whites. Women and those who were under 45 years of age reported a higher preference for a patient directed approach to care than men and those who were older than 45 years old (Levinson et al.).

As shown by Levinson et al. (2004), not all patients desire to participate in

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decision-making. However, the authors did not show specifically if African American women specifically preferred more patient directed approach to care, considered if provider type influence preferences to be involved with decisions, or associate preferences for decision-making to healthcare outcomes. Future studies should investigate patient preference for decision-making and how that effects the patient-provider interaction and resulting patient outcomes in a clinical setting.

### *Provider Discrimination*

African Americans are disproportionately served by “safety net urban hospitals” (IOM, 2002) and are more likely to encounter bias, stereotyping, prejudice and discrimination in contacts with the the health care system. Care process factors such as provider bias, stereotyping, uncertainties in decision-making and patient’s mistrust, and refusal of services and treatments were suggested as potentially contributing to disparities in care (IOM, 2002).

Providers like all people, may be negatively affected by stereotypes (Cooper & Roter, 2002). In examining the effect of patient race and socio-economic status on physicians’ perceptions and attitudes of patient during a post-coronary angiogram encounter, van Ryn & Burke (2000) showed that physicians tended to perceive African Americans and members in low and middle SES groups more negatively when compared to White and upper SES patients even after controlling for multiple confounders.

Though many studies have identified the existence of discrimination in healthcare (Bird & Bogart, 2001; Lillie-Blanton et al., 2000; LaVeist, Nickerson, Bowie, 2000) and its ill effects on health and poor birth outcomes (Giscombe & Lobel, 2005; Williams, Neighbors, & Jackson, 2003; Williams, 1999), few studies have examined if patients

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perceive provider discrimination during an actual prenatal care visit.

Bird & Bogart (2001) examined whether African Americans' perceive race and SES-based discrimination in their interactions with providers and the relationship between perceived race and SES-based discrimination on healthcare utilization. African American respondents (59 women and 17 men) were recruited from community-based organizations and completed a self-report questionnaire. Perceived discrimination was measured using the adapted version of Williams and colleagues Everyday Discrimination (Williams, Yu, Jackson, & Anderson, 1997).

Descriptive analyses showed that 63% of respondents reported having had one or more experiences with perceived race-based discrimination and 58.9% had reported one or more experiences of perceived SES-based discrimination. Although healthcare utilization was assessed (i.e. number of times the respondents was admitted to a hospital in the past year, had gone to the emergency room in the past year, and had visited a provider in the past year), spearman rank correlation analyses revealed that experiences with perceived race or SES-based discrimination with their providers was *not* associated with number of provider visits.

Using the 2001 Commonwealth Fund Survey, Blanchard and Lurie (2004), examined the influence of negative perceptions in the patient provider interaction on healthcare utilization. Negative perceptions of the patient provider interaction were operationalized by five questions: treated with disrespect, looked down upon by provider, treated unfairly due to race, language, and believed would have received better care if from different race.

Multivariate regression analyses showed that greater percentage of all minorities

(African American, Latino, and Asian) were significantly more likely to report negative perceptions of patient provider interaction for every question as compared to Whites. For instance, 15% of African Americans as compared to 1% Whites were more likely to report that they would have received better care if they belonged to a different racial group. After adjusting for demographic characteristics and having a primary care physician, negative perceptions of the patient provider interaction were also significantly associated with not receiving a physical exam ( $p \leq .001$ ), less likely in receiving optimal chronic disease care ( $p \leq .01$ ), and more likely to be nonadherent to doctor's recommendations ( $p \leq .01$ ) and delay seeking needed care ( $p \leq .001$ ) (Blanchard & Lurie).

Perceived discrimination during prenatal care, labor, and delivery was investigated using the Oregon Pregnancy Assessment Monitoring System (1998-1999 and 2000-2001) (DeMarco & Thorburn, 2008). Perceived provider discrimination was measured by asking women if they felt they had ever been treated differently by healthcare providers during prenatal care, labor, or delivery because of their race, culture, ability to speak or understand English, age, insurance status, neighborhood in which they lived, religious beliefs, sexual orientation or lifestyle, marital status, or desire to have an out of hospital birth.

Results showed that one-fifth (18.5%) of the women surveyed experienced some form of provider discrimination. Adjusted odds ratios showed that women who were less than 19 years old (OR 2.43, 95% CI 1.67-3.54,  $p < .001$ ) and women who were greater than 35 years old (OR 1.91, 95% CI 1.26-2.91,  $p < .01$ ) were significantly more likely than mothers aged 20-34 years to report provider discrimination. Reports of provider

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discrimination were also more significantly likely among women who were not married (OR 1.79, 95% CI 1.30-2.47,  $p < .001$ ) vs those who were married, women who had less than \$50,000 annual household income (<15,000 OR 1.76, 95% CI 1.05-2.97,  $p < .05$ ; 15,000-29,000 OR 1.96, 95% CI 1.22-3.14,  $p < .01$ ; 30,000-49,999 OR 1.77, 95% CI 1.12-2.82,  $p < .05$ ) vs those who had greater than \$50,000 annual household income, receiving service other than private, health maintenance organization physician, hospital clinic, or health department (OR 2.96, 95% CI 1.83-4.78,  $p < .001$ ), and among women who were unable to pay bills during pregnancy (OR 2.12, 95% CI 1.61-2.79,  $p < .001$ ) than among those who had no trouble paying bills (DeMarco & Thorburn, 2008).

This study was one of the first studies using probability sampling to investigate provider discrimination while receiving reproductive care. However, the sample is limited by small racial/ethnic diversity and the survey was unable to differentiate during what course of reproductive care (ie. prenatal vs labor vs delivery) the women perceived discrimination and from whom they perceived discrimination (ie. physicians, nurses, office staff, etc.). Another limitation was that the data was collected retrospectively. Future studies should prospectively investigate if pregnant African American women experience provider discrimination during an actual patient-provider interaction and if this affects process of care outcomes and adherence to health behaviors.

### *Comparing Patient-Provider Perceptions*

The interaction between a provider and patient is highly personal and reciprocal. Providers and patients like all humans are prone to form preconceived stereotypes about each other. These subconscious prejudices and stereotypes may lead to differences in the way providers and patients are perceived and treated.

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The concept of interpersonal attraction in the clinical visit has been investigated by social scientists. Hall et al conducted an exploratory, longitudinal study to examine the predictive effects of provider and patient liking after a clinical visit (Hall, Horgan, Stein, & Roter, 2002). When patients and physicians were asked to rate how much they liked each other, the accuracy of perceived liking was significant and positive; thus, both patients and physicians were aware of how much one liked each other (Hall et al.). Physician's liking for the patient and patient's liking for the physician positively predicted patient's satisfaction one year later (Hall et al.). In the same study, physicians had greater liking of patients who rated themselves to be in better physical and mental health (Hall et al.).

Accuracy in physician and patient perception of respect was tested in a different sample of primary care patients (n=215 patient-physician encounters) and associated with physician communication behaviors. Although 45% of patients overestimated physician respect, 36% of patients accurately perceived the amount of respect the physician had for the patient (Beach, Roter, Wang, Duggan, & Cooper, 2006). Differences in physician communication behavior were evident among patients that were highly and moderately respected. For instance, physicians provided more information and expressed greater positive affect to highly and moderately respected patients (Beach et.al.). As differences in perceptions could lead to differences in outcomes, research should compare differences and similarities in perceptions of patient-provider encounter when examining the effects of patient-provider interaction on health outcomes.

## **Intermediate Outcomes**

### *Process of Care Outcome: Trust in Provider*

Trust has been conceptualized as a multi-dimensional measure and has included the dimensions of competence, honesty, confidentiality, and fidelity (Stepanikova, Mollborn, Cook, Thom, & Kramer, 2006). Key provider behaviors that promoted trust reported by minority women in focus group and ethnographic interviews were effective patient-provider communication (e.g. providers listened, took time to answer questions), demonstration of caring behavior, and perceived provider competence (Battaglia, Finley, & Liebschutz, 2003; Cricco-Lizza, 2006; Sheppard, Zambrana & O'Malley, 2003). In addition, greater trust in one's primary care provider has been predictive of utilizing recommended preventive services among older low -income African American women (O'Malley, Sheppard, Schwartz, & Mandelblatt, 2004) and strongly correlated with satisfaction, willingness to recommend provider to friends, and not seeking second opinions in a national sample of adults (Hall et al., 2002).

Conflicting results exist in the studies that used national surveys based on how trust was measured. Specifically, in that of identifying characteristics of those who were more likely to trust in their providers. For instance, the study conducted by Halbert et.al. (2006) investigated the relationships between trust in providers and prior healthcare experiences, structural characteristics of healthcare, and sociodemographic characteristics using the 1999 Kaiser Family Foundation: Race Ethnicity, and Medical Care survey. Trust was a single item measure based on how much trust the respondents placed in providers to do what is best for the patients. Prior healthcare experience was assessed as number of annual health visits and quality of interactions (i.e. providers asked enough



questions, provided clear explanations, attentive during their most recent visit) with providers.

Using a multivariate model, low trust was significantly associated with those who were African American, female, reported fewer quality interactions with providers, and did not receive care at a physician's office. Stratified logistic regression analyses showed that African Americans who had fewer quality interactions with providers were three times more likely to report low trust compared to those who had higher quality of interaction (OR 3.23, CI 1.97-5.29,  $p \leq .001$ ) (Halbert et al., 2006). However, the authors did not examine how trust influenced healthcare outcomes. Further, they used only a single item to measure trust, and were not able to distinguish if trust was associated with a particular provider or providers in general.

In contrast to Halbert et al. (2006), the study conducted by Armstrong et al. (2007) measured racial differences in physician distrust using the 1998-99 Community Tracking Study (CTS). Physician distrust was based on four items of trust: I think my doctor may not refer me to a specialist, I think my doctor is strongly influenced by health insurance company rules when making a decision about my medical care, I sometimes think that my doctor might perform unnecessary tests or procedures, and I trust my doctor to put my medical needs above all other considerations.

Adjusting for SES and not site, women consistently had lower physician distrust than men and this gender difference was greater among African Americans than among Whites or Hispanics. A limitation of this study is that researchers assumed that the opposite of trust is distrust. However, different conceptualizations exist regarding trust. This is evident as the trust measures had low internal consistency (Cronbach's

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alpha=.59); thus, the four measures on trust may have measured different dimensions of trust.

Rather than examining physician distrust, Stepanikova et al. (2006), used the 2000-01 CTS to investigate if different dimensions of trust influence racial/ethnic differences in trust in providers. The four trust items as stated previously in the Armstrong et al. (2007) study was separated to direct (e.g. I trust my doctor to put my medical needs above all other considerations) and indirect measures of trust (e.g., doctor may not refer me to a specialist when needed, doctor is strongly influenced by insurance rules, and doctor might perform unnecessary tests).

Constrained cumulative logit models showed that there was no significant difference between White and African Americans on the direct measure of trust. However, in the full cumulative logit models, racial/ethnic differences existed depending on the survey items measuring indirect trust. As compared with Whites, African Americans had the highest odds (reflecting a lower level of trust) of responding that the doctor is strongly influenced by insurance rules. Thus, racial/ethnic differences were evident depending on how trust was measured (Stepanikova et al.).

In addition, the authors tested for potential mediation of the following variables between race/ethnicity/language and trust: patients' ratings of their physicians (e.g. physicians' listening, explaining, and thoroughness), characteristics of care, satisfaction with the choice of physician, insurance status, physical and mental health, SES, gender, age, and region. Except for Hispanics interviewed in Spanish, there was no significant evidence that patient ratings' of their physicians mediated the relationship between race/ethnicity/language and direct or other indirect measures of trust (i.e. concerns about

referrals and unnecessary tests) (Stepanikova et al., 2006).

The four items were identified as one single factor in the factor analysis, but the Cronbach's alpha for the four items was .61, indicating a relatively low internal consistency. Similarly to Armstrong et al.'s study (2007), the relatively low internal consistency as well as inconsistent relationships between direct and indirect measures of trust and other variables further indicate that the questions could have been measuring different components of trust. The authors acknowledge that the indirect measures of trust were worded negatively and the direct measure of trust that was not significant in the analyses was worded positively. Negatively worded items may reflect distrust, but as the authors suggested, relatively little conceptual and empirical has been conducted on distrust. For instance, distrust may be a separate concept than trust and that the indirect measures of trust simply referred to patients' evaluations of the likelihood that the physicians would perform certain behaviors. Thus, the authors bring into question if these observed variations in trust measures among minority groups were result of meaningful racial/ethnic/language differences or as a result of English grammatical syntax (Stepanikova et al., 2006).

National surveys investigating trust are limited by retrospective data and the questions within the survey. The inconclusive evidence on the effect of patient-provider interaction on trust has been due to inconsistencies in trust measurements, lack of clarification on the type of provider assessed, and how trust affects patient behaviors such as adherence to treatment recommendations and return visits. Future studies need to use validated racial/ethnic trust measurements to examine how specific elements of patient-provider interaction affects trust and how trust moderates/mediates patient behavioral

health outcomes.

A clinical study of African Americans conducted by Benkert et al. (2006) demonstrated that perceived racism had a positive and direct effect on cultural mistrust. Cultural mistrust had a negative and direct effect on trust in providers and trust in providers had a positive and direct effect on satisfaction with care. Benkert and colleagues conducted another clinical study examining the relationships among cultural and medical mistrust, racial identity, and patient satisfaction (Benkert, Hollie, Nordstrom, Wickson, & Bins-Emerick, 2009).

Correlation analyses showed that patients who had higher transcendent racial identity attitudes (internalization) ( $r=.28, p <.01$ ) were more satisfied and those who had greater mistrust of the healthcare system ( $r=-.29, p <.01$ ) were less satisfied with care received by nurse practitioners. Participants who had higher trust ( $r=.61, p <.01$ ), were in a race concordant relationship ( $r=.23, p <.05$ ), and received care from a nurse managed center ( $r=-.30, p <.01$ ) were more satisfied with care delivered by nurse practitioners. Stepwise hierarchical regression analysis revealed that only higher trust ( $\beta = .59; p <.001$ ) and lower conformity on the Black Racial Identity Attitude Scale ( $\beta = -.20; p <.01$ ) significantly predicted 41% variance in satisfaction (Benkert et al.).

Although trust has been strongly correlated with satisfaction, Thom and colleagues (1999) showed that trust was a predictor of adherence, continuity of care, and satisfaction even after adjusting for baseline satisfaction after six months. But after adjusting for initial trust, baseline satisfaction was only predictive of subsequent satisfaction (Thom, Ribisl, Stewart, & Luke, 1999). The researchers concluded that evidence exists to show that trust and satisfaction are two distinct concepts and that trust

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is a predictor of satisfaction. However, no study to date has investigated the effects of patient-provider interaction and trust, satisfaction, and adherence to health behaviors among African American women receiving prenatal care.

#### *Process of Care Outcome: Satisfaction*

Satisfaction is considered an indicator of quality care (IOM, 2001) and has been the outcome variable most highly investigated related to patient-provider interaction (Brown, Stewart, & Ryan, 2003; Thompson & Parrot, 2002). Provider communication is an important variable in assessing patient's perceptions of quality of care received (Thompson & Parrot, 2002). Key provider communication behaviors influencing patient satisfaction are treating the patient with care and concern, provider competence, continuity of care, asking a balanced mixture of biomedical and psychosocial questions, and expressing patient and provider expectations (Brown, Stewart, & Ryan, 2003). When patients are satisfied, they are more likely to adhere to treatment and presumably this would influence other outcomes, such as improvements in patient's health status, continuity of care, and utilization of healthcare services (Aharony & Strasser, 1993; Cleary & McNeil, 1988).

Limited research has examined satisfaction specifically in African American women who are of lower income and have lower levels of education (Carr-Copeland & Scholle, 2000). Two studies have specifically investigated the effects of patient-provider interaction on satisfaction with prenatal care. In a correlational study of Medicaid and non-Medicaid pregnant African American women, Handler et al. (2003) investigated prenatal care characteristics associated with satisfaction with care. Satisfaction was measured using a validated 30-item multi-dimensional satisfaction questionnaire. The

multiple prenatal care characteristics were divided into four major scales: provider communication score, waiting room score, exam room score, and availability of ancillary services score.

After controlling for personal characteristics and other covariates, prenatal care characteristics predictive of satisfaction were provider communication score,, ambience of the waiting and exam rooms, having spent shorter amount of time in the waiting room (<30minutes), receiving care at an urban clinic, and availability of ancillary services. From these predictors, time spent with the provider, clinic site, and time spent in the waiting room were the top predictors that explained 43% variance in satisfaction.

As stated previously under the discussion of the health information concept, Korenbrot et al. showed that dimensions of prenatal interpersonal processes of care that were associated with greater satisfaction among pregnant African American women were communication ( $\beta = .20$ ;  $p < .05$ ) and interpersonal style ( $\beta = .81$ ;  $p < .0001$ ) which explained 48% of the variance in satisfaction (Korenbrot, Wong, & Stewart, 2005).

Satisfaction is an important quality of care measure. Many patients can be satisfied with their overall care, but significant questions remain such as: Does being satisfied lead to better clinical patient outcomes? Do patients who are more satisfied better adhere to treatment? Do patients utilize health services or return for clinic visits? Additional research is needed to explore the relationship between satisfaction and subsequent patient health behaviors in a clinical setting.

#### *Health Behavior Outcome: Adherence to Treatment Recommendations*

Three basic components of prenatal care have been identified by the 1989 U.S. Public Health Service: (1) early and continuing risk assessment, (2) health promotion,

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and (3) medical and psychosocial interventions and follow-up. During the patient-provider interaction, it is the provider's responsibility to appropriately assess and deliver the recommended prenatal care guidelines. Four factors have been associated with patient adherence to treatment regimen: provision of health information, establishment of common expectations, active participation from the patient, and provider expressing positive affect, empathy, and encouragement (Belle-Brown, Stewart, & Ryan, 2003).

Research has shown that patients are only able to retain half (Snyder, Lynch & Gruss, 1976) to two-thirds of provider recommendations (Hulka, Kupper, & Cassel, 1975 as cited in Lochman, 1983). Even more, African American women are less likely to receive advice about health risks (Kogan et.al, 1994), receive technical aspects of care (Lobel et.al., 1992), and seek and discuss health information with their providers than White women (Wiltshire et.al, 2006). If patients do not understand what the provider has communicated or if the provider did not sufficiently explain in terms that their patient understand, key information will be missed and/or not retained during patient-provider interaction; thus, potentially leading to perceptions of poorer treatment and less likelihood to adhere to treatment recommendations or utilize health services.

Indeed, clarity in communication is a characteristic that pregnant women value in their prenatal providers (Bennett, Switzer, Aguirre, Evans, & Barg, 2006). Future research should assess for women's retention and perceptions of the treatment recommendation received during the patient-provider interaction and how they affect adherence.

Another component of health behavior is adherence to return visits. Significant adverse effects on gestational age at delivery have been identified in several studies of

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inadequate prenatal visits (Cox, Zhang, Zoti, & Graham, 2009; Dailey, 2009; Krueger & Scholl, 2000; Tierney-Gumaer & Reifsnider, 2008; Vintzileos, Ananth, Smulian, Scorza, & Knuppel, 2002). African-American women have been found to be 3.2 times as likely as White women to have no prenatal care at all, and on average to start prenatal care later and have fewer prenatal care visits than White women (Alexander, Kogan, & Nabukera, 2002; Vintzileos et.al.).

Personal problems (e.g. family problems, depressed mood, substance use, and desire for abortion), structural issues (e.g. transportation, childcare, lack of access, etc.), and negative experiences with healthcare providers and negative attitude towards healthcare system have been cited as barriers to utilization of prenatal care (Mikhail, 1999; York et al., 1999). Chi-square analyses revealed that women who received inadequate and no prenatal care reported significantly higher personal problems than women who received adequate prenatal care ( $p < .001$ ) (York et al.). Additional significant barriers to prenatal care included dislike of doctors/clinics ( $p < .01$ ), lack of transportation ( $p < .001$ ), and child care difficulties ( $p < .01$ ).

In another study of African American women and utilization of prenatal care, the authors used a classification and regression trees (CART) analysis to identify high risk groups for inadequate prenatal care utilization. It was identified that African American women who reported psychosocial problems, substance use, and did not participate in Women and Infant Children's (WIC) programs were most at risk for inadequate prenatal care utilization (Johnson et al., 2007). Strategies to increase the return rate for subsequent prenatal visits, especially among African Americans may help decrease the number of preterm births and reduce racial disparity in preterm births (Alexander et.al.).



## Summary

Communication is a two way process. It is a dynamic exchange of dialogue between the patient and the provider. Limited studies have investigated both patient and provider perceptions of communication and assessed for provider discrimination during the healthcare encounter. Even less research has been conducted on provider's perceptions of the patient-provider interaction immediately after the prenatal visit. Assessing for perceptions of patient-provider interaction is especially important for African American women who have faced or are more likely to experience unequal treatment.

Relational components such as trust, respect, perceived discrimination, feeling cared for, and listening skills are essential elements of patient-provider interaction (Benkert, Pohl, & Coleman-Burns, 2004; O'Malley et al., 2004). We do not know what event or series of events or behavior(s) lead women to feel disrespected or perceive discrimination in the clinical visit, but these factors are important to discover in order to ultimately reduce disparities, improve patient outcomes, and advance quality of care.

Strong evidence exists that various elements of patient singularity and patient-provider interaction influence healthcare outcomes. However, the majority of the descriptive and exploratory studies have not been guided by a theoretical framework, have been conducted retrospectively, and have not examined the relationships among patient singularity, patient-provider interaction, and multiple outcomes of care. Research based on a theoretical framework will expand on and illuminate the intricate and dynamic interpersonal processes of care and its relationships to outcomes. Further understanding of patient-provider interaction and its impact on multiple processes of care and behavioral

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outcomes during prenatal care will help providers and patient improve their communication skills, strengthen the patient-provider relationship, improve the quality of prenatal care, and ultimately affect pregnancy-related outcomes.

## **CHAPTER 3**

### **METHODOLOGY**

#### **Introduction**

The modified Interaction Model of Client Health Behavior was used to guide this exploratory, descriptive study to explore the relationships among patient singularity, patient-provider interaction, and intermediate outcomes with African American women receiving prenatal care. In this section, the method, procedures, patient and provider measures that were examined, and the plan for data analysis will be presented.

#### **Design**

In this exploratory, descriptive study, 18-45 year old African American women (n=204) who were scheduled for their initial prenatal care visit and their providers (n=21) were recruited from a prenatal care clinic associated with a large hospital in Southeastern Michigan.

Data collection occurred in two phases: (1) women and providers completed surveys regarding the patient-provider interaction immediately after the initial prenatal visit encounter and (2) women's adherence to treatment recommendations (health behaviors) was assessed through a face to face interview at the subsequent prenatal visit. If the women did not return for their prenatal visit, one follow-up telephone call was made.

## Setting and Sample

### *Setting*

African American women were recruited from an urban prenatal clinic associated with a large health system in Detroit, Michigan. Of the ten largest cities in the United States, Detroit has the largest proportion of African Americans, comprising 82% of the total population for the city (U.S. Census 2000). The median income in Detroit is \$29,526 with 26.1% of the residents living below the poverty level (U.S. Census, 2000).

The health system where the women and providers were recruited served a large (>50%) African American population (B. Fortune, personal communication, September 19<sup>th</sup>, 2008). Routine prenatal care visits at the clinic followed the recommended ACOG guidelines for a visit every four weeks up to 28 weeks gestation, then every two weeks between 28-36 weeks gestation, followed by weekly visits from 36 weeks gestation until term at 40 weeks. Approximately 15-20 initial prenatal care visits were scheduled each week (personal communications, Fortune, September 19<sup>th</sup>, 2008).

### *Sample*

Purposive sampling was used to recruit African-American women and providers from the health system. Women were eligible if they were between 18-45 years of age, identified themselves as African American, were attending their first prenatal visit for the current pregnancy, spoke, read, and wrote English. Providers were eligible if they were currently an obstetrics provider at the prenatal clinic and held an advanced graduate degree.

A total of 204 women were approached from February 2009 to October 2009 and informed consent was obtained, but only 189 (93%) women completed the questionnaires. The other remaining women (n=15) did not complete the post-visit questionnaires and were not included in the analysis. The majority of the women who were dropped did not have enough time to complete the post visit questionnaires or the questionnaires were grossly incomplete (n= 8), had to leave for a family or obstetric emergency (n= 2), were too ill (n=1), not confirmed pregnant (n= 1), left the clinic prior to seeing the Principal Investigator (PI) (n= 2), or had inactive insurance which meant that the woman left the clinic prior to seeing a provider (n=1).

Obstetricians (n=7), obstetric residents (n=16), and one physician assistant staffed the prenatal clinics. By July 2009, four female residents graduated and four new residents joined the residency team. Thus, 21 providers were eligible and all agreed to participate in the study. A total of 153 provider surveys out of 189 were included for analysis. The 38 surveys (19%) that were missing were not completed by the providers after the visit.

### **Data Collection Procedures**

Procedures in this study were approved by the Institutional Review Board at University of Michigan and the health system associated with the prenatal clinic. Written informed consent was obtained from all participants (providers and patients) prior to research. Data collection included post-visit perceptions questionnaires, demographic questionnaires, and a brief interview of women at the follow up visit.

### *Procedures for Women*

The PI recruited women from the clinic waiting rooms. To minimize clinic staff burden, the PI posted flyers, provided study packets (including consent forms) and explained the study to interested women. Immediately after the prenatal visit, the women received a questionnaire to complete and the questionnaire was placed in a file folder upon completion. Each questionnaire was assigned a code number that corresponded to the women's return visit in a separate logbook.

Routine prenatal care visits at the clinic followed the recommended ACOG guidelines for a visit every four weeks up to 28 weeks gestation, then every two weeks between 28-36 weeks gestation, followed by weekly visits from 36 weeks gestation until term at 40 weeks. Approximately 15-20 initial prenatal care visits were scheduled each week (personal communications, Fortune, September 19th, 2008). Depending on which trimester the woman had her initial prenatal care, the subsequent prenatal care visit was used to assess if the woman adhered to self-reported provider recommendations and returned for her appointment. Women received \$20 if they completed the post-visit questionnaires and received \$5 after the brief interview at the subsequent visit.

### *Procedures for Providers*

The PI initially met with all the providers at their regular provider meeting to inform them about the study. Then the PI met separately with each of the interested providers to explain the study procedures, obtain informed consent, and complete a demographic survey. Only provider race, gender, and years of practice were collected from the demographic survey. Immediately following the visit, the providers completed a post-visit patient-provider interaction survey in a private office room. To ensure

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confidentiality, each provider was assigned a numeric code that was connected to a separate logbook. This numeric code along with the patient number was used for the provider survey. The PI collected the completed surveys at the end of each prenatal clinic. Providers were not provided any incentives for participating in the study.

## **Measures**

This section will discuss the pretesting of patient and provider measures and will describe the patient and provider measures used to collect data in this study.

### *Pretest of Measures and Assess for Feasibility*

All measures were pre-tested with a sample of ten African American pregnant women and two providers to assess for clarity, content, completeness, and feasibility. African American pregnant women between the ages of 18-45 year old (n= 10) who were present for their initial prenatal visit were recruited from the clinic waiting room. The women completed the surveys immediately after the prenatal visit with the mean completion time of 13 minutes with a range of 10-19 minutes. The women were asked during a brief interview regarding the format of the survey and if they were able to understand the survey directions and questions. From the women's suggestions, the survey items and directions were clarified. The majority of the women found the survey, "easy to use and to understand" (see Appendix A). Providers (n=3) on average took about 45 seconds to one minute to complete the post-visit survey. Based on the brief post-interview with the providers, the questionnaire was made double-sided and specific recommendations were added (see Appendix B).

## Patient Measures

All theoretical concepts based on the modified IMCHB and its related empirical measures for patients, including reliability measure for each scale ( $\alpha$ ) are listed in Table 3.1. The following section will individually discuss each patient measure assessed along with its operational definition.

### *Patient Singularity Measures*

*Patient Demographic Variables.* Single items assessed women's age, number of living children, education, income, gestation week, living situation, health status, marital status, insurance, and employment.

*Patient's Perceived Racism.* Perceived racism was operationally defined as the individual perception that racism exists and was measured using the Perceptions of Racism Scale (PRS) (Green, 1995). In this study, the term discrimination and racism will be used interchangeably to indicate the perception that racism exists (Green, 1995). The PRS is a 20-item questionnaire that utilizes a 4 point Likert scale (strongly agree to strongly disagree) with a possible range of score of 20-80. Higher scores represent higher perception of racism. The PRS contains three categories/domains of racism as perceived by African American women: affective, behavioral, and cognitive (Green). Affective racism referred to feelings of racism. Behavioral racism pertained to racist actions and cognitive racism referred to racist thoughts. For this study, all three domains of perceived racism were combined to form a composite perceived racism score.

Women's perceived racism questions were in reference to women's general (ie, employment, judicial system) and health-related (ie. hospitals and doctor's offices) perceptions of racism. Content validity was established by a panel of experts and



concurrent validity was assessed with another study that showed a positive relationship between stress and racism. Cronbach's alpha was .88 for the pilot and .91 in the second study (Green). The Cronbach's alpha for the current study was .87.

*Patient's Preference for Race Concordance Measure.* Patients' preference for race was defined as patient's preference for the same racial/ethnic concordant provider. Preference for race concordance was measured using a modified version of a single question based on the *Kaiser Family Foundation Survey of Race, Ethnicity, and Medical Care: Public Perceptions and Experiences* (Kaiser Family Foundation, 1999). The response choices were yes, no, or does not matter." Since the majority of the women in this study responded to "does not matter," or "no," a variable was created to indicate women who preferred same race provider (ie. yes to race preference) and women who did not prefer the same race provider (ie. no to race preference or race preference did not matter). Women who preferred a race concordant provider was assigned a "1" and women who did not have a preference or did not matter if they had the same race concordant provider was assigned a "0."

*Patient's Depressive Symptomatology Measure.* Patient's depressive symptomatology was defined as having symptoms that resembled the major components of clinical depression such as depressed mood, feelings of worthlessness, hopelessness, loss of appetite, poor concentration, and sleep disturbance. These depressive symptoms were measured by the National Institute Mental Health's Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977).

The CES-D is a 20-item survey based on a 4 point Likert scale (0=rarely or none of the time, 1=some or little of the time, 2=occasionally or moderate amount of time, 3=

most or all of the time) with a possible score range of 0-60 that has been widely used in research. It is a screening tool for depression, but not a diagnostic tool of depression. The CES-D has been validated for low SES African American population (Nguyen, Kitner-Triolo, Evans, & Zonderman, 2004).

Although the normal cut off point for possible depression had been a score of 16 or higher, a score of 23 or higher was used in this study to reduce any false positive classifications that have been known to occur with population that are at higher risk for depression (McLennan, Kotelchuck, & Cho, 2001; Siefert et.al., 2007). A new variable was created to indicate women who scored 23 or higher. This new variable was then entered into the regression model. Cronbach's alpha for CES-D measure for the current study was .85

#### *Patient-Provider Interaction Measures*

*Patient Perceptions of the Patient-Provider Interaction.* Patient perceptions of the patient-provider interaction are defined as how the patient perceives the provider's content and process of communication and discriminatory treatment during the actual prenatal care visit. Patients' perceptions of the patient-provider interaction was assessed using the Matched-Pair Communication Instrument (MCI) developed by Campbell, Lockyer, Laidlaw, & MacLeod (2007), questions adapted from the Everyday Discrimination questionnaire (Williams, Yu, Jackson, & Anderson, 1997; Bird & Bogart, 2001), and selected questions from the 2001 Commonwealth Fund Survey (Collins et al., 2002). The MCI was revised in this study to assess for patient-provider interaction in the prenatal care context and the questions assessing for provider discrimination was also revised.

The original MCI contained 19 patient-provider question items and measured the process and content of patient-provider interaction. All questions used a five point Likert scale with responses ranging from “strongly disagree” to “strongly agree”. Questions that assessed for patient-provider interaction from the MCI was conceptually divided according to patient-provider interaction variables of affective support (7 items), health information (7 items), and decisional-control (4 items) with a possible score range of 18-90.

Initial correlation analysis showed high correlations for patient-provider interaction variables of affective support, health information, and decisional-control ( $r = .80$  to  $.86$ ) (Table 3.2). As a result, the patient-provider interaction variables of affective support, health information, and decisional-control were combined to create a total patient-provider communication (PPC) score with higher scores indicating greater quality of patient-provider communication. The Cronbach’s alpha for the entire MCI scale for patients was .95.

Seven total items were added to assess for provider discrimination. Out of the seven items, five items with dichotomous responses (yes/no) were adapted from Williams Everyday Discrimination (Williams, Yu, Jackson, & Anderson, 1997; Bird & Bogart, 2001) and two items were based on a five-point Likert scale responses were retrieved from the 2001 Commonwealth Fund Survey (Collins et al., 2002).

Two 5 point Likert scale provider discrimination questions, “The doctor treated me with respect and dignity, and, “The doctor treated me fairly,” were recoded as dichotomous scores. Responses indicating strongly agree to neutral (possible range 3-5) were coded as “0.” Responses of strongly disagree and disagree (possible range 1-2)

were coded as “1” to indicate some form of discrimination. These two variables were combined with the five other dichotomous discrimination questions to form the composite provider discrimination score. Then, the provider discrimination variable was collapsed with “1” indicating some form of provider discrimination and “0” for no provider discrimination. Any score greater than seven indicated some form of perceived provider discrimination with a possible range of 7-14. The Cronbach’s alpha for the composite Provider Discrimination score was .83.

### *Intermediate Outcomes*

*Patient’s Trust in Provider.* Patient’s trust in provider is defined as “person’s belief that the physician’s words and actions are credible and can be relied upon,” (Anderson & Dedrick, 1990). The Trust in Physician Scale (TPS) was used to measure patient’s perceptions of trust in the provider (Anderson & Dedrick). For this study, the word “physician” was replaced with a broader “provider” term. The TPS has high internal consistency (Cronbach’s alpha = .89) and 1-month test-retest reliability (intraclass correlation coefficient =0.77) (Thom, Ribisl, Stewart, & Luke, 1999). The TPS is composed of 11 questions based on a 5 point Likert scale (strongly disagree to strongly agree) with a possible score range of 11-55. Higher scores indicated greater trust. Similar to Thom’s study (1999), the Cronbach’s alpha for the current study was .89.

*Patient Satisfaction with Prenatal Care.* Patient satisfaction is defined as the person’s global perception about the quality of provider’s communication and the overall quality of prenatal care received. Items about satisfaction with prenatal care were based on the AHRQ-MEPS (2003), the Prenatal Care Satisfaction Questionnaire (Raube,

Handler, & Rosenberg, 1998), and the MCI (Campbell et al., 2007). Questions included, *“The provider talked to me about things that were important to me.”* *“Overall, I am satisfied with our communication during the visit.”* *“I would recommend my prenatal provider to a friend.”* and *“Overall, I was satisfied with this prenatal visit today.”* A composite scale of these 4 items based on 5 point Likert scale (strongly disagree to strongly agree) represented Patient Satisfaction with Prenatal Care with a possible score range of 4-20. Higher scores indicated greater prenatal care satisfaction. The Cronbach’s alpha for the current study was .87.

*Adherence to Prenatal Health Behaviors.* Women’s perceptions of adherence to provider’s treatment recommendations after the initial prenatal visit were assessed by the following question, *“What did your provider recommend for you to do to better take care of yourself and the baby from your first prenatal visit?”* The women had ten categories of items that were most likely to be recommended in prenatal care: 1) Labs/tests: prenatal labs, ultrasounds, other, 2) Risky Behaviors: stop smoking, stop drinking alcohol, stop using drugs, 3) Take prenatal vitamins or other supplements, 4) Talk to the social worker, 5) Return for next prenatal visit, 6) Sexual Health: use condoms, avoid sex, other, 7) Diet: eat healthy foods, what kind?, Amount?, 8) Exercise: what kind?, How often? 9) No recommendation, 10) Other. The women were not prompted by the PI to complete the “other” category.

Adherence to provider recommendations was assessed at the subsequent prenatal visit by asking the woman if she followed the recommendations that she marked in the initial survey. The women were asked initially if she recalled the provider’s recommendations. If the women did not remember the provider’s recommendations, then

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the PI prompted the participant and then proceeded to ask if she adhered to the prenatal behaviors that were marked at the initial prenatal visit.

### **Provider Measures**

All theoretical concepts based on the modified IMCHB and its related empirical measures for providers, including reliability measure for each scale ( $\alpha$ ) are listed in Table 3.3. The following section will individually discuss each provider measure assessed along with its operational definition.

#### *Provider Singularity Measures*

Provider is defined as any practitioner who has completed graduate education training, including medical doctors, physician assistants, and advanced practice nurses. Provider demographic variables of race/ethnicity, age, gender, years of practice, and patient likeability were collected.

#### *Provider-Patient Interaction Measures*

*Provider Perceptions of the Patient-Provider Interaction.* Provider perceptions of the patient-provider interaction are defined as how the provider perceives his/her content and process of communication and non-discriminatory treatment toward the patient during the actual prenatal care visit. Providers' perceptions of the patient-provider interaction were assessed using the revised MCI (Campbell et. al., 2007). The MCI had a parallel version for providers in measuring the content and process of patient-provider interaction. Similar to the patient MCI, the provider MCI questionnaire contained 19 items with responses using a 5 point Likert style. Two parallel questions regarding provider's perceptions of non-discriminatory treatment were added to the provider MCI. Cronbach's alpha for the provider questionnaire was .70.

Similar to the MCI scoring of the women, the variables of affective support, health information, and decisional control were combined to form a composite patient-provider communication (PPC) score for providers with a possible score range of 18-90. This is referred to as the PPC for *providers*. For this study, the Cronbach's alpha for the PPC for providers was .93 and the Cronbach's alpha for the two provider perceptions of non-discriminatory questions was .76.

#### *Intermediate Outcome*

*Provider Trust.* Provider's trust is defined as provider's perception that the patient believes the provider is credible and can be relied upon. Provider's perception of trust was measured using a single item "I feel that this patient trusts me," with a possible score range of 1-5 based on a 5 point Likert scale (strongly disagree to strongly agree).

*Provider Prenatal Care Satisfaction.* Provider satisfaction is defined as the provider's global perception of how he/she perceived the quality of the visit. The item from the MCI, "Overall, I was satisfied with this visit today," was used to measure provider prenatal care satisfaction and was based on 5 point Likert scale (strongly disagree to strongly agree) with a possible score range of 1-5.

### **Sample Size Estimate and Data Analysis**

#### *Power Analysis*

PASS software was used to conduct the power analysis (Hintze, 2008). For specific aim 1 and 2, linear multiple regression analysis was used to analyze the 11 explanatory variables to predict the outcome variable of trust, and satisfaction. To obtain a power of 0.80 to detect an  $R^2$  of .10 and alpha at 0.05, a sample size of 162 was needed

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as determined by the highest number (11) of explanatory variables in the regression model.

The outcome measures of adherence to prenatal health behaviors were dichotomous measures; hence, logistic regression was used. PASS software (Hintze, 2008) was used to calculate the sample size needed for 80% power at a two-tailed .05 significance level with an odds ratio of 2.00 when the proportion on the outcome variable was 0.3. An adjustment was made for a squared multiple correlation of .50 between the key predictor variable and other predictor variables in the logistic regression equation. A sample size of 159 women was needed (Hsieh, Block, Larsen, 1998).

For Aim 3, using PASS software (Hintze, 2008) to calculate a sample size needed for a 80% power of a two sided one sample t-test with a medium effect size ( $d=.5$ ), 65 participants were needed. The  $d$  is the difference between the means divided by the standard deviation (Machin, D., Campbell, M., Fayers, P., & Pinol, A., 1997; Zar, J.H., 1984).

To account for 20% attrition with the highest sample size needed for recruitment that was determined by the power analysis of 162 participants, 203 women were needed. Thus, a total of 204 women were recruited.

### *Data Screening*

In order to maintain integrity of the data for analysis, the data was pre-coded and prepared for data entry. Data was double-entered in SPSS (Version 18.0, SPSS Inc., Chicago, IL) to check for accuracy and cleaned. Cleaning the data was done in the following steps and will be described further in the upcoming sections: (1) missing data was checked and dealt with by calculating the mean score of the total number of



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responses, (2) assumptions of linear regression including outlier cases were evaluated and transformations were considered, and (3) provider data was examined for the presence of clustering effect. After the data was cleaned, descriptive statistics including means, standard deviations, and medians were calculated for patient and provider variables.

*Missing Data.* Missing data can be result of respondent fatigue, participant refusal, or participant error and reported to be common in research (Polit, 1996, Tabachinck & Fidell, 2007). Although there were no set guidelines on how much missing value was tolerable in a given sample size, Tabachinck & Fidell (2007) considered it a minor problem if there were less than 5% missing data and the missing values were missing in a random pattern.

In this study, 15 of 204 women did not complete the post-visit questionnaire survey, which resulted in a final sample of 189 women that were included in the study. Out of the 189 women who were included, if women responded to 80% of the questions on each scale, the final score was calculated by the mean of the total number of responses. If the women did not respond to 80% of the questions, the final score for the scale was coded as missing.

For each measure, the descriptives and the total number of responses are provided in Tables 4.1, 4.2, and 4.3. Overall, there were less than 3% missing data for the women and provider measures. More missing data were apparent when examining women and provider demographics (Tables 4.1 and 4.2). This was apparent for women's income (n=11, 6% missing) and provider race (n=2, 10% missing).

*Evaluation of Assumptions.* Regression assumptions of linearity, homoscedasticity, normality, univariate and multivariate outliers were evaluated using P-

P plots, residual plots, and Mahalanobis distance calculations for each outcome variable. Multicollinearity was examined by the tolerance and VIF values. VIF greater than 2.5 and tolerance of less than .40 were used as the criterion to indicate multicollinearity (Allison, 1999). All tolerance values were greater than .74 and VIF values were less than 1.5 for this study, which indicated that collinearity was not a problem.

For intermediate outcome variables of trust in provider and prenatal care satisfaction, the P-P plot and the residual plots were examined for normality, homoscedasticity, and linearity. Transformations were conducted on both analyses, but the transformations did not change or improve the results. Therefore, the emphasis was on the untransformed analyses.

With the use of a  $p < .001$  criterion for Mahalanobis distance (Tabachnick & Fidell, 2007), eight outliers were found among all the cases ( $N = 189$ ). The results were evaluated with and without the selected extreme cases. The extreme cases were double checked for data entry and response error. It was deemed that the extreme cases were based on participants who had negative interactions with the provider and these cases were included in the analysis. Thus, no cases were eliminated from the analyses.

*Evaluation of Provider Clustering Effect.* In this study patients were nested within providers. Since the sample size was insufficient to account for this clustering effect, it was not feasible to conduct multilevel analyses to adjust for clustering. Instead, the random variations between and within providers were examined using intra-class correlation. A visual graphical display and intraclass correlation (ICC) was calculated for the continuous outcome variables of interest such as trust and prenatal care satisfaction. The boxplots indicated that there was a great variation within providers but little variation

among providers, indicating a weak provider effect (Figures 3.1 and 3.2).

The variations for the variables of interest were then partitioned into between and within providers level using restricted maximum likelihood method (REML). For trust, the variance within provider was estimated to be 43.59 and the variance between providers was estimated to be zero. For prenatal care satisfaction, the within- variance was estimated to be 6.21 and the between- variance was estimated to be 0.01. These values indicate that the random variations between and within providers examined by the intra-class correlation and had a small effect size and was not significant. The results confirm that there was minimal to no provider effect. Hence, hierarchical linear model was not necessary for the current study and linear regression was used to examine the multivariate relationships.

### **Specific Aim Testing**

#### *Specific Aim 1 Analyses*

Multiple linear and logistic regression were performed to examine the intermediate outcome variables of trust in provider and prenatal care satisfaction with variables of patient singularity (preference for race concordance, perceived discrimination, and depressive symptomatology) and variables of patient-provider interaction (patient-provider communication and provider discrimination) as predictors. The outcome measure of adherence to prenatal health behaviors of return visit, getting prenatal labs drawn, obtaining an ultrasound, and taking prenatal vitamins were dichotomous; thus, logistic regression was used. These prenatal health behavior measures were selected because they had the most number of responses from the women and

providers. The dichotomous dependent variables of return visit, prenatal labs, ultrasound, and prenatal vitamins were regressed on variables of patient singularity

### *Specific Aim 2 Analyses*

Similar to specific aim 1, multiple linear regression analyses were used to examine the relationships between patient-provider interaction (patient-provider communication and provider discrimination) and the continuous outcome variables of trust in provider, and prenatal care satisfaction. Logistic regression analyses were used to examine the relationships between patient-provider interaction and the dichotomous outcome variables of adherence to prenatal health behaviors (return visit, getting prenatal labs drawn, receiving an ultrasound, and taking prenatal vitamins).

### *Specific Aim 3 Analyses*

To compare the differences and similarities between patients' and providers' perceptions of patient-provider interaction, trust in provider, and prenatal care satisfaction, Pearson correlations were used initially to examine the linear associations between patients and providers' perceptions. Then, two-tailed paired t-tests were conducted to examine the mean difference between provider and women patient-provider interaction scores, trust in provider, and prenatal care satisfaction scores. Kendall Tau b was used to describe the relationships among the continuous outcome variables of trust in provider, prenatal care satisfaction, and selected dichotomous measures of adherence to prenatal health behaviors. Finally, logistic regression models were conducted to examine the effects of trust in provider and prenatal care satisfaction on adherence to prenatal health behavior measures.

## CHAPTER 4

### Results

In this chapter, results of the study will be presented. Descriptive statistics of the women and providers will be discussed, followed by descriptives of the model measures, and the results from each specific aim.

#### Sample Characteristics

##### *Women*

Sample characteristics are presented in Table 4.1. The age of women in the sample ranged from 18 to 41 years with a mean age of 24.4 years, ( $SD = 4.90$ ). The majority of women were single (79.4%), living with family (59.3%), and on Medicaid (86.8%). In terms of education, a majority of women (63.8%) had graduated from high school or received some college education. Over half of the women (53.4%) worked part-time, full-time, or were students. However, over 60% of women made less than \$25,000 a year.

In relation to their pregnancy, weeks of gestation ranged from 4 to 38 weeks with mean gestation of 14.9 weeks ( $SD = 7.95$ ). Over half of the women ( $n=99$ , 53.2%) came to their initial prenatal visit during the first trimester of their pregnancy (4-12 weeks), while 39% ( $n=72$ ) women had their initial visit during their second trimester (13-28 weeks). For only a little over quarter of the women (26%;  $n = 48$ ), this was their first pregnancy with a greater portion of the women reporting that this was their 2nd or more

number of pregnancy (73%). The majority of women reported their health status as very good ( $n = 64$ , 31.4%) and good ( $n = 75$ , 36.8%).

### *Providers*

Sample characteristics for providers are presented in Table 4.2. The majority of the providers were female ( $n = 17$ ; 81%) with a mean of 3.2 years in practice ( $SD = 5.62$ ). This group of providers represented a diverse sample of racial/ethnic backgrounds. Out of the 21 providers, the largest racial/ethnicity group represented were White ( $n = 6$ ), followed by African American ( $n = 5$ ), and Asian ( $n = 5$ ). The number of new obstetric patients seen by each provider every week during a one day four hour clinic session was one or two patients. The number of patients seen by each provider ranged from 1 to 14,  $M = 9$ ,  $SD = 5.67$ .

## **Descriptive Analyses of Model Variables**

### *Patient Measures*

A summary of the descriptive analyses of patient intermediate outcomes, patient-provider interaction, and patient singularity variables can be found in Table 4.3. The total score for intermediate outcome measure of trust in provider ranged from 18-55 with a mean of 48.00 ( $SD = 6.30$ ), indicating high values of trust in provider. For prenatal care satisfaction, the possible range of score was 4-20. In this study, the total observed score ranged from 6-20 with a mean of 18.29 ( $SD = 2.36$ ), indicating women were highly satisfied with their prenatal care.

Patient singularity variables examined included perceived racism, depressive symptomatology, and preference for race concordance. The mean observed perceived

racism score was 38.21 ( $SD = 7.77$ ) with a possible range of 20-80, indicating that the women had lower mean levels of perceived racism. For depressive symptomatology, approximately 20% of the women in the study had scores 23 and higher indicating probable depression ( $n=37$ ) with a mean score of 15.08 ( $SD = 9.33$ ). The possible range for depressive symptomatology was 0-60 and the observed range was 0-52. For 39% of the women ( $n=73$ ), a score of 16 or more was obtained indicating possible depression. The majority of the women (98%,  $n=183$ ) indicated no preference to having a provider of same race while only four women (2%) indicated preferring a same race provider.

Patient-provider interaction variables consisted of patient-provider communication (PPC) and provider discrimination. The mean score of PPC for patients was 81.68 ( $SD = 10.43$ ; observed range of 24-90 with a possible range of 18-90), which corresponded to high levels of quality patient-provider communication. The observed and possible range for the provider discrimination scale was 7-14 with a mean of 7.12 ( $SD = 0.64$ ), showing no provider discrimination. Although the majority of the women reported no provider discrimination ( $n=172$ , 84.3%), 12 women (7%) reported having experienced one or more incidents of provider discrimination during the patient-provider encounter at the initial prenatal visit. For the women that did perceive provider discrimination, they felt that the doctor was not listening ( $n=1$ ), received poorer service than others ( $n=1$ ), or felt they were treated unfairly ( $n=2$ ). Reasons for provider discrimination as cited by the women ranged from age ( $n=3$ ), insurance ( $n=3$ ), number of children ( $n=2$ ), gender ( $n=1$ ), felt doctor was rushing ( $n=1$ ), and shade of skin color ( $n=1$ ). The responses were not mutually exclusive.

### *Provider Measures*

Descriptive summary of provider intermediate outcome and patient-provider interaction measures are presented in Table 4.4. The parallel PPC score for providers was similar to that of PPC for women. The mean PPC score for providers was 83.96 ( $SD = 6.90$ , observed range 54-90 with a possible range of 18-90,  $n=152$ ), signifying high quality of patient-provider communication. The mean provider discrimination score for providers was 9.47 ( $SD = 0.99$ ) with possible range of 0-10, indicating almost no levels of perceived discriminatory treatment toward patients. Providers perceived that the patients highly trusted them and the providers were highly satisfied with the visit as indicated by high mean scores of 4.43 ( $SD = 0.72$ ) and 4.50 ( $SD = 0.72$ ) respectively. Both trust and prenatal care satisfaction was based on possible range of 1-5.

### *Women's Adherence to Prenatal Health Behavior Measures*

The final paired-sample of women who took the survey initially and then returned for subsequent visits was 153. There were 14 missing patient surveys and 37 women who did not return to the clinic. Out of the paired-sample (patient-provider), 152 provider surveys were included because one of the provider surveys did not match with the surveys of the women who returned.

The descriptive summary of women's adherence to prenatal health behaviors is found in Table 4.5. The most frequent provider recommended prenatal health behavior that women reported were obtaining prenatal labs ( $n=122$ , 80%), eating healthy foods ( $n=99$ , 65%), getting an ultrasound ( $n=96$ , 63%), and taking prenatal vitamins ( $n=83$ , 54%).



### *Providers' Responses to Recommended Prenatal Health Behaviors*

Provider descriptive responses of what they had recommended for the women after the initial prenatal visit is found in Table 4.6. The most frequent recommendations from the *provider's perspective* included obtaining prenatal labs (n=114, 88%), taking prenatal vitamins (n=107, 82.9%), and receiving an ultrasound (n=77, 60%).

## **Results by Specific Aim**

### *Specific Aim 1*

*Specific Aim 1.* Examine whether patient singularity (preference for race concordance, perceived racism, and depressive symptomatology) predict trust in provider, satisfaction with prenatal care, and adherence to prenatal health behaviors.

Multiple linear regression analyses were performed to examine the intermediate outcome variables of trust in provider and satisfaction with prenatal care. Logistic regression analyses were used to examine the four most common prenatal health behavior adherence measures of return visit, obtaining prenatal labs, receiving ultrasounds, and taking prenatal vitamins.

The model for trust in provider and prenatal care satisfaction included three predictors: preference for race concordance, perception of racism, and depressive symptomatology (women who had probable depression). Perceived racism had a negative and significant association with trust, ( $\beta$  -0.35,  $p < .001$ ), indicating that women who reported greater perceived racism prior to the patient-provider interaction reported lower trust in their provider. Preference for race concordance and depressive symptomatology were not significant predictors of trust in provider (Table 4.7). The

model accounted for 12% of the total variance in trust in provider,  $F(3, 182) = 9.58$ ,  $p < .001$ .

For prenatal care satisfaction, the model was also significant,  $F(3, 182) = 4.39$ ,  $p = .005$ . Similar to trust in provider, perceived racism had a negative and significant association with prenatal care satisfaction ( $\beta -0.26$ ,  $p < .001$ ). Higher perceived racism scores were associated with lower prenatal care satisfaction. Preference for race concordance and depressive symptomatology were not significant predictors of prenatal care satisfaction. The model only explained 5% of the variance in prenatal care satisfaction (Table 4.8).

Logistic regression for all adherence to prenatal health behavior measures of getting prenatal labs, obtaining an ultrasound, and taking prenatal vitamins were analyzed using the data only from women who returned ( $N=153$ ). Because return visit applied to all women in the sample, the logistic regression for adherence measure of return visit, was analyzed using the data from the total sample ( $N=189$ ).

Results showed that the full model did not significantly predict return visits ( $p = .92$ ), obtaining ultrasounds ( $p = .96$ ), and taking prenatal vitamins ( $p = .70$ ) (Table 4.9-4.12). Although the full model of getting prenatal labs reached significance, omnibus test  $\chi^2(3, N=152) = 8.18$ ,  $p = .05$ , tests of the individual predictors in the model were all non-significant. All the predictors at the 95% confidence interval contained a 1. Thus, the model was not useful for predicting the behavior of getting prenatal labs (Table 4.10).

### *Specific Aim 2*

*Specific Aim 2.* Examine whether patient-provider interaction (patient-provider communication and provider discrimination) predicts African American women's trust in

provider, satisfaction with prenatal care, and adherence to prenatal health behaviors.

Multiple linear and logistic regression analyses were performed to examine the intermediate outcome variables of trust in provider, satisfaction with prenatal care, and adherence to prenatal health behaviors (return visit, obtaining prenatal labs, receiving ultrasounds, and taking prenatal vitamins) with variables of patient-provider interaction (patient-provider communication and provider discrimination). As stated previously, the mean score of the individual variables of patient-provider interaction of affective support, health information, decisional-control was summed to form a composite patient-provider communication score (PPC) for patients.

The full model for patient trust in provider and prenatal care satisfaction for Aim 2 contained two predictors: PPC and provider discrimination. The full model explained 56% of the variance in trust,  $F(2,181)=119.02, p<.001$ , and 71% of the variance in prenatal care satisfaction,  $F(2,181)=217.16, p<.001$  (see Table 4.14). Then the effect of individual predictors was examined for each outcome variable.

Multiple linear regression analyses showed that PPC variable had a significant effect on trust in provider, ( $\beta = 0.75, p<.001$ ), and on prenatal care satisfaction, ( $\beta = 0.81, p<.001$ ) (see Table 4.13). With one unit increase in PPC scale, women's trust in provider increased by .45 after adjusting for provider discrimination. Similarly, with one unit increase in PPC scale, women's prenatal care satisfaction increased by .18 after adjusting for provider discrimination. The size and direction of the relationship suggests that women who had higher PPC scores reported greater trust in provider and prenatal care satisfaction. For prenatal care satisfaction, discrimination almost reached

significance ( $p = .08$ ) indicating women who experienced greater provider discrimination reported lower prenatal care satisfaction (Table 4.14).

Logistic regression analysis was performed using the predictors of patient-provider interaction (PPC and provider discrimination) against adherence to prenatal health behavior measures of obtaining prenatal labs, getting ultrasounds, taking prenatal vitamins, and return visit. Similarly to Specific Aim 1, only the women who returned were entered into the analyses ( $N=153$ ) for prenatal labs, ultrasounds, and prenatal vitamins. Analysis of return visit involved using the entire sample ( $N=189$ ).

The overall model for each logistic regression conducted on each of the adherence prenatal health behavior measures was non-significant (prenatal labs:  $p = .36$ , getting ultrasounds:  $p = .75$ , taking prenatal vitamins:  $p = .64$ , and return visit:  $p = .89$ ). Furthermore, PPC and provider discrimination variables were not significant predictors of adherence to any of the prenatal health behaviors investigated in this study (Table 4.15-4.18).

### *Specific Aim 3*

*Specific Aim 3.* Compare differences and similarities between patients' and providers' perceptions of patient-provider interaction

*Specific Aim 3a:* Compare differences and similarities between patients' and providers' perceptions of trust in provider and satisfaction with prenatal care

*Specific Aim 3b:* Examine the relationships among outcomes of trust in provider, satisfaction with prenatal care, and adherence to prenatal health behaviors

To examine the differences in women and provider responses of patient-provider interaction, trust in provider, and prenatal care satisfaction, only the paired sample data of

women and provider were used (N =150). Paired sample correlation results showed that providers' and women's perceptions of patient-provider interaction, trust in provider, and prenatal care satisfaction were not linearly related (see Table 4.19). The magnitudes of the relationships between all measures for women and providers were weak and insignificant ( $r = -.02- 0.16$ ) (Table 4.19).

A two-tailed paired t-test revealed that the mean differences between women and provider scores were significantly different for only the PPC measure (Table 4.19). All other measures between women and providers were not significantly different. Thus, evidences from the current study showed that the perceptions between women and providers regarding provider discrimination, trust, and prenatal care satisfaction didn't seem to differ and both parties rated their visits as highly positive as shown by mean prenatal care satisfaction of 4.50 ( $SD=.72$ ) for providers and 4.57 ( $SD=.63$ ) for women with a possible range of 1-5 for both satisfaction scales.

To assess the relationships among the outcome variables, only the data for women who returned for a subsequent visit were used (N=153). Kendall Tau b statistics were calculated to examine the relationships among trust in provider, prenatal care satisfaction, return visits, obtaining prenatal labs, getting ultrasounds, and taking prenatal vitamins (Table 4.20). Prenatal care satisfaction was significantly correlated with trust in provider ( $p =.01$ ) and obtaining prenatal labs was significantly correlated with prenatal satisfaction ( $p = .05$ ). There was no value computed for return visit as only women who returned were included for this analysis (N=153).

Logistic regression models were used to assess the relationships among the intermediate outcome variables of trust in provider and prenatal care satisfaction in

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predicting adherence to prenatal health behaviors such as return visit, getting prenatal labs drawn, obtaining ultrasounds, and taking prenatal vitamins. The *full* models for trust in provider and prenatal care satisfaction in predicting prenatal lab draws ( $p = .03$ ) and return visits ( $p = .01$ ) were significant (Tables 4.21-4.22). The full models for receiving ultrasounds ( $p = .26$ ) and taking prenatal vitamins ( $p = .92$ ) were not significant (Tables 4.23-4.24).

However, the individual predictors of trust in provider and prenatal care satisfaction were all non-significant for the outcome variables of prenatal labs, ultrasounds, and prenatal vitamins (Tables 4.22-4.24). Thus, these models were not useful for understanding getting prenatal labs, receiving ultrasounds, and taking prenatal vitamins.

For return visit, in contrast to the other models, the individual predictors of trust in provider ( $p > .01$ ) and prenatal care satisfaction ( $p > .01$ ) were both significant and predictive of return visits. But, the unstandardized beta coefficient of prenatal satisfaction was negative ( $b = -.39$ ) indicating that women who had lower prenatal care satisfaction were more likely to return for their subsequent appointment (Table 4.21).

Several post hoc analyses were conducted to explain this seemingly counterintuitive result. Initially, the frequencies of the satisfaction scores were examined of the women who returned versus those who did not return for their prenatal visit. Indeed, the women who did not return had scores 16 or above on the prenatal care satisfaction scale (Maximum = 20), indicating high prenatal care satisfaction scores. However, for the women who returned, there was more variation in their prenatal care satisfaction scores, including a number of women who had lower prenatal care satisfaction scores. Thus, the variation in prenatal care satisfaction may be spurious.

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There was a strong correlation between the prenatal care satisfaction and trust in provider surveys ( $r = .79$ ). The VIF of trust and satisfaction was 2.67. A VIF of greater than 2.5 could be a concern for multicollinearity especially in the case of logistic regression with smaller sample sizes (Allison, 1999). Consequently, it was deemed that it was the unique statistical combination of trust in provider and prenatal care satisfaction scores that led to significantly predicting return visits and not either of the variables independently.

Since trust and satisfaction scales were strongly correlated and to avoid multicollinearity problems as stated previously in the model fitting, the mean score of the individual items were summed to form one composite score. Then, the composite score was used to determine if it was a predictor of any of the adherence to prenatal health behavior measures. Only the data from women who returned were used ( $N=153$ ), except in the case of analyzing return visit in which case the entire sample was used ( $N=189$ ).

Logistic regression models showed that the overall models for all adherence to prenatal health behavior measures were not significant (all  $p < .05$ ): prenatal lab ( $p = .08$ ), ultrasound ( $p = .70$ ), prenatal vitamin ( $p = .92$ ), return visit ( $p = .74$ ). Similarly, the combined scale for trust in provider and prenatal care satisfaction was not predictive of any adherence to prenatal health behavior measures (Table 4.25-4.28).

## **CHAPTER 5**

### **Discussion**

The purpose of this study was to describe how patient singularity and patient-provider interaction influence process of care outcomes and prenatal health behaviors of pregnant African American women. The modified Interaction Model of Client Health Behavior (IMCHB) provided the framework for this study and its assumptions were tested. The following sections provide a discussion of the results according to the specific aims, and strengths and limitations including recommendations for future research. Finally, implications for practice will be discussed.

#### **Relationship between Patient Singularity and Process of Care Outcomes and Adherence to Prenatal Health Behaviors**

Among the patient singularity variables of preference for race concordance, perceived racism, and depressive symptomatology, only perceived racism had a negative, significant effect on outcome measures of trust in provider and prenatal satisfaction. That is, women who had higher perceived racism prior to the patient-provider encounter reported lower trust in their provider and lower satisfaction with prenatal care. This finding suggests that negative effects of perceived racism may be reduced by quality patient-provider communication, resulting in higher trust in provider and prenatal care satisfaction. Results are similar to other studies that show an inverse relationship between perceived discrimination and process of care outcome measures such as trust in



provider and satisfaction (Benkert, Peters, Clark, & Keeves-Foster, 2006; Fowler-Brown, Ashkin, Corbie-Smith, Thaker, & Pathman, 2006; LaVeist, Nickerson, & Bowie, 2000).

Women in this study had lower levels of perceived racism than in Green's study (1995). The lower levels of perceived racism scores could be reflective of the effects of greater awareness of racial/ethnic disparities in healthcare leading to improvements in race relations within the healthcare system and society as a whole in the past decade. Another reason may be that the women in this study were young ( $M = 24.4$  years, observed range of 17-41 years) and were born after the civil rights era. The studies cited above by Benkert et al., (2006), Fowler-Brown et al., (2006), and LaVeist et al., (2000), were conducted with samples of African American men and women whose average age was greater than 43 years old. This does not negate that racism still exists today, but it may mean that the women in this study may not have had as much exposure to or different experiences with racial discrimination to form negative racial perceptions about healthcare and life in general. This is plausible considering that the city of Detroit where the women were recruited from is one of the most highly racially segregated cities in the United States (Frey & Myers, 2005). Other studies that examined perceived discrimination in the same city that this current study was conducted also reported lower levels of perceived racism in their study sample (Benkert et al.).

Prenatal health behaviors investigated in this study included were return visit, taking prenatal vitamins, receiving ultrasounds, and getting prenatal labs drawn. Women's adherence to prenatal health behaviors was not explained by patient singularity variables, including perceived racism. Several reasons can be postulated of why perceived racism did not predict women's adherence to prenatal health behaviors.

Women in the study generally had adherence of prenatal health behavior rates that ranged from 93-100%. This high level of adherence could be attributed to the fact that pregnant women would most likely adhere to certain recommendations regardless of their interaction with their provider and their level of perceived racism. For instance, pregnant women want to receive intervention such as ultrasounds and prenatal labs regardless of prior perception of racism, for this is precisely what African American pregnant women consider quality prenatal care (Yi, Lori, & Martyn, 2008).

Another reason that perceived racism did not predict prenatal health behaviors could be due to low perceived racism scores ( $M=38.21$  ( $SD=7.77$ ), possible range of 20-80). For this population of women, perceived racism did influence their trust in provider and prenatal care satisfaction, but it was not significant enough to impact adherence to prenatal health behaviors. This informs the author that other patient variables that were not present in the model should be considered (e.g. barriers to transportation, child care, financial resources, self-efficacy, and social support) in investigating adherence to follow up procedures.

There was insufficient evidence that preference for race concordance improves process of care outcome and health behaviors of African American pregnant women. This supports the recent comprehensive literature review by Meghani et al. (2009) in which authors reported inconclusive evidence on the positive association of race concordant relationships in improving minority process and healthcare outcomes. Furthermore, other studies have shown that physician behaviors (e.g. treating patients with respect, adequate listening, spending enough time) were more predictive of satisfaction than race concordance (Saha et al., 2003).

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The majority of the women in this study did not prefer race concordant provider relationships. Since only 4 women preferred race concordant relationships, this lack of power limited our testing of how preference for race concordance affected process of care outcomes and adherence to prenatal health behaviors.

Women in this study may not have preferred to be in a race concordant relationship for several reasons. First, for the majority of the women (75%), this was not their first pregnancy. These women may have become accustomed to being in race discordant provider relationships at the clinic which is run by residents of diverse racial/ethnic backgrounds. Second, the women rated their trust in provider and their prenatal visit satisfaction as highly positive. This reveals the quality of prenatal care that is delivered by the providers and the staff at this particular prenatal clinic. In a prior study at the same clinic, many pregnant women voiced they had returned to this specific clinic for their pregnancy due to the compassionate treatment they received from the providers and the staff (Lori, Yi, & Martyn, in press). Finally, the women may have had a greater preference for another provider characteristic such as gender concordance or continuity of care rather than race concordance.

Depressive symptomatology indicating probable depression was not a predictor of process of care outcomes and prenatal health behaviors in this study. This is contrary to Webster et al.'s study (2001), which reported that depressed post-natal women were less satisfied with their healthcare providers than non-depressed women. Receiving bad information and providers not listening to them were the two most cited reasons for dissatisfaction (Webster et al.).

Depressive symptomatology did not contribute to process of care outcomes and

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adherence to prenatal health behaviors. In this study, approximately 20% of the women had symptoms indicative of probable depression (>23 score on CES-D) and one third of the women had symptoms of possible depression (>16 score on CES-D). The high prevalence of women suffering from depressive symptoms is of further concern and possible indication unmet depression treatment. However, preliminary secondary analyses revealed that women with depressive symptoms indicating possible depression (>16 score on CES-D) had a mean trust in provider ( $M=47.9$  ( $SD=5.76$ ); possible range of 11-55) and mean prenatal care satisfaction score ( $M=18.1$  ( $SD=2.19$ ); possible range of 4-20) that was generally high. This indicates women who had depressive symptoms were still satisfied and highly trusting of their provider.

While depressive symptomatology may not have affected process of care outcomes or adherence to prenatal health behaviors, it may still influence infant birth outcomes. This is especially important in light of studies showing the maternal depressive symptoms as a risk factor for preterm birth (Li, Liu, & Odouli, 2009; Gavin, Chae, Mustillo, & Kiefe, 2009; Orr, James, & Blackmore-Prince, 2002). In addition, the process of care outcomes of trust in provider and prenatal care satisfaction, may have been too narrow to fully capture the broad, intricate, and complex lives of pregnant women. Future investigation should examine depressive symptomatology and other outcomes such as infant birth outcomes.

With studies reporting longitudinal (more causal) relationship between perceived discrimination with both depression (positive) and general health status (negative) (Schulz et al., 2006) and other cross-sectional studies associating a positive relationship between perceived discrimination and depressive symptoms (Banks, Kohn-Wood, &

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Spencer, 2006; Canady, Bullen, Hozman, Broman, & Tian, 2008; Siefert et.al., 2007), future secondary analyses should be conducted to examine the relationships among perceived racism, patient-provider communication, and its influence on trust, satisfaction, and general health status and birth outcomes between pregnant women with depression and those that did not report depression.

### **Relationship between Patient-Provider Interaction and Process of Care Outcomes and Adherence to Prenatal Health Behaviors**

Quality patient-provider communication was significantly predictive of greater trust in provider and prenatal care satisfaction, explaining 56% of the variance in trust and 70% of the variance in prenatal care satisfaction. This is consistent with other studies conducted on African American women's satisfaction with prenatal care in which 48% of variance in satisfaction was explained by provider communication and interpersonal style (Koreenbrot, Wong, & Stewart, 2005) and women were more satisfied if providers spent more time, engaged them by explaining procedures, and answered questions (Handler, Rosenberg, Raube & Lyons, 2003). More recent studies conducted in primary care settings also show positive effects of patient-provider communication on satisfaction with care. Interpersonal processes of care (ie, patient-provider communication, patient-centered decision making, and interpersonal style of physician) explained 41% of the variance in satisfaction with physician (Napoles, Gregorich, Santoyo-Olsson, O'Brien, & Stewart, 2009).

In this study, quality patient-provider communication was associated with greater prenatal care satisfaction. This shows the strong impact of patient-provider communication and satisfaction, which is considered as an indicator of quality care

(IOM, 2001). In this clinic, the women's average perceived patient-provider communication was high ( $M=81.68$ ,  $SD= 10.43$ ; possible range 18-90) which partially explained why women were highly satisfied. The high ratings of patient-provider communication could partially be explained by provider demographics. The average number of years in practice for the providers at this clinic was 3.26 years ( $SD= 5.62$ ), observed range of 0.1-27 years, with a mean age of 31.7 ( $SD=6.83$ ), observed range 26-54, indicating the providers in the study were relatively younger with less number of years in practice. This is consistent with a systematic review reporting that physicians who have been in practice longer and who were older were less likely to adhere to standards of care, have less factual knowledge, and may have worse patient outcomes (Choudhry, Fletcher, & Soumerai, 2005).

Quality patient-provider communication was significantly predictive of greater trust in provider. Results are similar to other studies that report quality patient-provider communication as one of the independent predictors of trust in provider (Berrios-Rivera et al., 2006; Thom & Stanford Trust Study Physicians, 2001; Street, O'Malley, Cooper, & Haidet, 2008). Additionally, many qualitative studies have emphasized the importance of quality patient-provider communication and trust in African American women's relationship with their providers (Battaglia, Finley, and Liebschutz, 2003; Copeland, Scholle, & Binko, 2003; Cricco-Lizza, 2006; Lori, Yi, & Martyn, in press; Sheppard, Zambrana, & O'Malley, 2004). However, this is one of the few clinical studies that have quantitatively investigated patient-provider communication and its relationship to trust with pregnant African American women.

Quality patient-provider communication explained 56% of the variance in trust in provider in this study. Similarly to the findings with prenatal care satisfaction, providers at this clinic had quality communication skills which was predictive of greater trust in provider despite the fact this was the woman's first prenatal visit. Other studies have shown patient-provider interaction behaviors such as being comforting and caring ( $r=.63$ ), demonstrating competency ( $r=.63$ ), checking the patient's understanding ( $r=.59$ ), and encouraging/checking progress ( $r=.57$ ) were correlated with trust and satisfaction (Thom & Stanford Trust Physician Study, 2001). Thus, this research continues to support the need for communication skills training for healthcare providers which could lead to greater trust in provider, greater satisfaction with care, and potentially reduce racial/ethnic disparities in quality of care and health behaviors for African American women.

Only a small number of women ( $n=12$ , 7%) indicated they experienced provider discrimination in this study; thus, lacking statistical power to detect the effects of provider discrimination on process of care outcomes and women's prenatal health behaviors. Regardless, this is one of the few clinical studies that measured provider discrimination immediately after the prenatal clinic encounter and able to identify why the women perceived provider discrimination. This further shows that the providers at this clinic were delivering, unbiased quality care which is evidenced by high quality patient-provider communication and high levels of trust and prenatal care satisfaction.

Rather than race-based discrimination, more women who perceived provider discrimination cited their age, insurance type, and number of children as reasons for perceived provider discrimination in this study. This is similar to other studies who report

insurance type as one of the most frequently reported discrimination (De Marco, Thorburn, & Zhao, 2008; Trivedi & Ayanian, 2006). Specifically, De Marco et al reported that perceived discrimination based on age and insurance status were the two most cited reasons during prenatal care, labor, and delivery. The fact that women perceived provider discrimination based on the number of children they have had may be related to negative stereotypes that refer to pregnant African American women as one who is living off of welfare (Taylor, 1999; Eliason, 1999).

### **Relationships among Processes of Care Outcomes and Adherence to Prenatal Health Behaviors**

In this study, there were no significant predictions between processes of care outcome measures of trust in provider and prenatal care satisfaction and women's prenatal health behaviors. Findings from this study are in contrast to studies that associate satisfaction and trust with greater likelihood to use preventive care services (Gary, Maiese, Batts-Turner, Wang, & Brancati, 2005; Musa, Schulz, Harris, Silverman, & Thomas, 2009; O'Malley, Sheppard, Schwartz, & Mandelblatt, 2004). In addition, trust in provider and prenatal care satisfaction was strongly correlated in this study. This is different than studies that have found trust and satisfaction to be two separate concepts in which trust was a predictor of satisfaction (Thom, Ribisl, Stewart, & Luke, 1999). Despite the lack of significant finding, this is one of few clinical studies that have examined process of care outcomes to women's adherence to prenatal health behaviors using a theoretical framework.

Several reasons could be purported to explain the nonsignificant relationship between process of care outcomes and women's adherence to prenatal health behaviors.



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First, apart from return visit, adherence measures of obtaining prenatal labs, getting ultrasounds, and taking prenatal vitamins were based on self report of women's perceptions of provider treatment recommendations at the initial prenatal visit. The results may have been more accurate or perhaps significant if *every* women who returned for their subsequent visit was asked about adherence to these prenatal health behaviors. Post hoc analyses showed that there were significant differences in provider recommendations and what women had perceived that providers had recommended in the initial visit. Although there is evidence to say self-report is more accurate than chart documentation, correspondence among patients' self-reports, chart audits, and audio/videotapes of medical visits can provide more accurate picture of the patient-provider interaction (DiMatteo et al., 2003).

Second, the self-reported adherence rate for prenatal health behaviors was high which may reflect social desirability bias. Third, the adherence measures of getting prenatal labs, receiving an ultrasound, and return visit all required interaction with the health systems as opposed to health behaviors. The behaviors that require interaction with the health system may not be dependent on their prenatal care satisfaction and trust in provider since women need these interventions during pregnancy. Lastly, factors other than prenatal care satisfaction and trust in provider that could potentially be predictive of return visits such as, transportation, availability of childcare, and ability to get time off work were not considered. Clearly, another variable that would require women to return to the same clinic independent of prenatal care satisfaction and trust in provider is their lack of options for other healthcare clinics in the surrounding community.

## **Perceptions of Patient-Provider Communication and Process of Care Outcome by Patients and their Providers**

Overall, the low correlation results showed that women and provider perceptions of patient-provider interaction, trust in provider, and prenatal care satisfaction were not related to one another. That is, when a woman indicated a high or low rating for patient-provider communication, the provider may not have necessarily marked the same level of rating as the woman. However, there is little evidence to suggest that either the provider or the women overreported or underreported on the four scales.

Paired t-test results showed that for patient-provider interaction, trust in provider, and prenatal care satisfaction, for the woman and provider were not significant except for the measure of patient-provider communication. This is partially explained by the fact that both providers and women in the study gave very high ratings; hence, the variation was limited to examining the differences across subjects. Interestingly though, there was a significant difference in patient-provider communication between women and providers in which the mean score of provider perceptions of patient-provider communication was slightly higher (4.68 vs 4.54) than the mean score of women's patient-provider communication score. However, the significance could have been due to the sample size and statistically significant, but not *clinically* significant.

It is also reasonable to think that there are differences in women's and provider's perceptions of patient-provider communication, but it may not be different enough to influence prenatal care satisfaction or trust in provider. These findings further lead to ask what factors that may be involved in influencing the woman's or provider's perceptions

of patient-provider communication as each one is completing the post-visit questionnaires such as time constraints, mental and physical fatigue, or comprehension difficulties.

The results of this study are consistent with a study by Hagihara and Tarumi(2009). In this study there was no relationship between the physician and patient perceptions of the physician's explanation during the medical visit ( $r=.03$ ). Findings showed that it was the patient's perception of the physician's explanation that predicted patient understanding and satisfaction. It could be possible that patient's perceptions are more accurate or more significant measures of patient-provider influence on process of care outcomes. However, self-report is the person's interpretation of the question at a certain point in time, which is likely that each person may have different interpretations at different points in time of the same items.

Despite the findings from this study, it is still important to assess communication from both parties as communication is bi-directional and one responds to another in this reciprocal exchange of verbal and nonverbal communication. Providers and patients, as are all humans, are prone to be influenced by attitudes and preconceived stereotypes of each other and this may lead to racial/ethnic disparities in communication and subsequent disparities in patient outcomes of care. Future studies should continue to examine provider perceptions and attitudes of the patient and vice versa and its relationship to patient health behaviors.

### **Summary**

Findings from this study are significant for several reasons. The majority of research examining patient-provider interaction has lacked a theoretical framework to guide investigators, ignored specialty practice settings outside of primary care (Roter &

McNeils, 2003), and not associated patient-provider interaction to health behaviors and patient health outcomes (Yi, 2008). This is one of the first few clinical studies that used a theoretical framework to guide the investigation of how patient singularity and patient-provider interaction are associated with process of care outcomes (trust in provider and prenatal care satisfaction) and adherence to women's prenatal health behaviors (return visit, obtaining prenatal labs, receiving an ultrasound, and taking prenatal vitamins) in a clinical setting.

In summary, the modified IMCHB is a useful theoretical framework in guiding future investigation of the complex relationships among patient singularity, patient-provider interaction, and its influence on process of care outcomes and adherence to prenatal health behaviors.

### **Strengths and Limitations**

There are many strengths of this study. The majority of patient-provider interaction studies with African American women have lacked a theoretical framework, mainly been conducted in primary care settings, and have not associated patient-provider interaction to health behaviors (Yi, 2008).

This study incorporated a theoretical framework to guide the investigation of patient-provider interaction and its association with process of care outcomes and adherence of prenatal health behaviors of pregnant African American women. This is also one of the few prospective studies that have investigated the effects of perceived racism and provider discrimination on process of care outcomes in a clinical setting with pregnant African American women. Furthermore, this study investigated the relationships among process of care outcome measures and women's health behaviors in

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a clinical setting with pregnant African American women. Finally, perceptions of both patient and provider communication were assessed using validated communication skills questionnaire to understand the patient-provider communication process and its relationship to process of care outcomes.

There are also several limitations to the study. This was a cross-sectional study and causal implications cannot be implied. The findings have limited generalizability because it was conducted with specific population, namely, pregnant African American women living in Detroit. There was little variability in prenatal care satisfaction and trust in provider scales. In addition, the self-report measures may have not been reliable reports.

Regardless, the fact that there was minimal variation in prenatal care satisfaction and trust in provider indicate a unique and model clinical environment in which women were pleased with patient-provider communication and were highly satisfied with their visit and trusting of their provider. This indicates the need for further examination of this current study's clinical environment and provider characteristics which could improve quality of prenatal care for African American women.

The women in this study may have been influenced by socially desirable responses or self-recall deficits. For the women, adherence measures were collected at the return visit via face to face interview of women's perceptions of what the provider recommended after the initial prenatal visit. The women may have provided socially desirable responses to the researcher and the questions about specific provider recommendations may have been inaccurately reported by the women. In addition, other adherence measures may have produced significant relationships with the outcomes

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measured, but this is more difficult to follow with the study design. Future chart reviews of the prenatal adherence health behaviors could objectively assess for adherence to prenatal health behaviors.

Maternal or infant health outcomes were not assessed. However, this study is one of the first clinical studies to associate trust and satisfaction with adherence to prenatal health behaviors using a theoretical framework. Although perceptions of patient-provider communication were assessed from both providers and patients, objective measures of patient-provider communication were not assessed. This could assist in delineating specific patient and provider communication behaviors that had the most effect on process of care outcomes.

### **Recommendations for Future Research**

This study is an initial step in using the modified IMCHB to guide investigation of the relationships among patient singularity, patient-provider interaction, and intermediate care outcomes (process outcomes of care and adherence to prenatal health behaviors) of African American pregnant women. In this section, future research recommendations will be discussed.

This current study did not examine infant birth outcomes. Past studies have shown that higher levels of perceived racial discrimination among pregnant African American women were associated with greater risk of preterm birth (Collins, David, Handler, Wall, & Andes, 2004; Dailey, 2009; Dole, Savitz, Siega-Riz, Hertz-Picciotto, McMahon, & Buekens, 2004). Secondary data analyses of the women who were involved in the study could be conducted to examine their infant birth outcomes and studies that monitor effects of perceived racism over time are needed.

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The modified IMCHB was useful in predicting process of care outcomes such as trust in provider and prenatal care satisfaction, but none of the patient singularity and patient-provider interaction variables predicted women's prenatal health behaviors. Future studies could use the modified IMCHB to examine other patient and provider variables that could influence adherence to prenatal health behaviors and ultimately, to maternal and infant health outcomes. Structural equation modeling can also be used to test the mediating/moderating relationships of the IMCHB.

More objective measurement of prenatal health behaviors measured in this study and other health behaviors could be collected through chart reviews for *all* women. Other secondary analyses could be conducted on various groups such as women with depressive symptoms vs those without depressive symptoms and race and gender concordant pairs to compare the differences in intermediate outcome between the groups.

This current study's clinical setting appears to be a "model" clinic in which women rated the quality of patient-provider communication high which led to high trust in provider and greater levels of prenatal care satisfaction. Future research can continue to be conducted in this clinical setting and identify specific provider, staff, and clinic variables (e.g. specific provider and staff behaviors, clinic hours, helpfulness of staff and nurses, provision of ancillary services) that contribute to quality prenatal care and health outcomes for women and infant. Other comparative studies can also be conducted at different prenatal clinics within southeastern Michigan, or other states.

Subjective measure of patient-provider interaction was obtained for this study. Future studies can analyze objective measures of patient-provider communication using audio-recording analyses. Subjective and objective measures of patient-provider

communication through questionnaires and audio-recording analyses could assist to identify clear mechanisms or behaviors that lead to disparities in patient-provider communication, quality of care, and health outcomes.

In addition, subsequent research could investigate the effects of nonverbal communication behaviors on patient health outcomes. Previous studies on nonverbal behavior suggests that positive nonverbal interaction such as physicians expressing concern and empathy and making eye contact have been associated with greater patient satisfaction (Griffith, Wilson, Langer, & Haist, 2003; Frankel, 1995).

Rather than race-based discrimination, the women in this study cited their insurance type, the number of children, and age as reasons for perceived provider discrimination. This finding sheds light for further investigation in examining forms of discrimination other than race-based discrimination in this population of women who were born after the civil rights era. Discrimination based on insurance type has policy implications that need to be re-examined in order to reduce racial/ethnic disparities in healthcare.

Future research should assess for attitudes, stereotypes, and biases of both providers and patients for various racial/ethnic groups to further aid our understanding in racial/ethnic disparities communication that leads to disparities in quality of care.

### **Implications for Practice**

Prenatal care is often the first encounter a woman has with the health care system. It provides an unique opportunity for providers to establish a relationship with the woman, provide health education and counseling, identify risk behaviors, offer psychological support, and arrange ancillary services for the woman and the child to



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ensure positive maternal and birth outcomes. Quality patient-provider communication is vital in establishing this therapeutic alliance with the pregnant woman throughout her pregnancy. Establishing this trusting relationship and providing quality prenatal care are critical in further understanding different strategies to reduce racial/ethnic differences in patient-provider communication and ultimately, racial/ethnic disparities in healthcare delivery process and health outcomes of African Americans.

Considering that the majority of the time spent during the initial prenatal visit is related to pregnancy history assessment, providers need to be aware of how patient-provider communication can influence future patient-provider relationships and how women perceive quality of care. This is also emphasized by recent ACOG's statement in supporting, "activities that involve a partnership between provider and patient, including strengthened, culturally-competent, communication between provider and patient... Sharing information and enhancing communication can lead to improved patient health care and satisfaction," (ACOG, 2009).

This highlights the importance of continued emphasis on communication skills training for providers, including strengthening of cross-cultural communication skills that extends beyond graduate education training. A tangible and practical method to provide communication education training is requiring continuing education credits for advanced health providers. Providers can also benefit from evaluation of their patient-provider communication competencies to identify areas of weaknesses and strengths by peers, supervising physicians, and patients.

Another implication for providers from this study suggests that providers need to be aware of and sensitive to the varying perceptions and experiences of healthcare and

general racism that each African American woman brings to the prenatal visit. These internal feelings, beliefs, and experiences with racism are deeply rooted in history and for many African American women, it is a daily lived experience (Alio et al., 2009; Barnes, 2008). African American women, especially those who are lower income or poorly educated, have less options for healthcare services, perceive lower quality of care (Copeland, 1995; Wheatley, Kelley, & Peacock, 2008) and fight against negative stigma associated with being pregnant and potentially living off of the welfare system (Taylor, 1999; Eliason, 1999).

Providers need to understand the stress related effects of racism and stereotypes that can contribute to poor care outcomes. Providers, in turn, also need to be cognizant of their own negative attitudes and stereotypes and approach each encounter with a non-judgmental attitude to deliver equal and unbiased care for African American women.

Health care systems should evaluate how prenatal care is delivered. Since quality patient-provider communication is an important factor in achieving women's satisfaction with care, it is equally important to examine the structure and delivery of care so that providers have adequate time to perform a comprehensive prenatal assessment, communicate what they need to say to patients, and see reduced number of patients per clinic day.

## **Conclusions**

The purpose of this study was to examine the relationships among patient singularity, patient-provider interaction, and intermediate outcomes of care such as trust in provider, prenatal care satisfaction, and adherence to prenatal health behaviors. This is one of the few first clinical studies to explore how perceived racism influences quality of

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care among pregnant African American women receiving prenatal care. In addition, it explored the positive influence on patient-provider communication on quality of care and was able to identify a small percentage of perceived provider discrimination during the prenatal visit. This study provides a strong foundation for future research to investigate the effects of perceived discrimination on patient-provider interaction and outcomes of care through analysis of audio-recordings of patient-provider communication.

The Institute of Medicine (2003) revealed substantial evidence on racial/ethnic disparities in health and healthcare in the United States. One of the most perplexing racial/ethnic disparities has been in the area of infant mortality. Although a substantial amount of research has been conducted on examining the biophysiological, social, and environmental reasons for disparities, few have investigated the role of interpersonal process of care and its impact on healthcare outcomes among African American women and their providers during prenatal care.

This study provides an initial foundation for future work in understanding how elements of patient and provider singularity, patient-provider interaction mediates/moderates healthcare outcomes. Further understanding of patient-provider interaction and its impact on intermediate and health outcomes during prenatal care will facilitate the development of interventions that will improve patient-provider communication, strengthen the patient-provider relationship, enhance quality of prenatal care, and ultimately reduce healthcare disparities for African American pregnant women.

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## **FIGURES**

Figure 1.1 Interaction Model of Client Health Behavior Modified

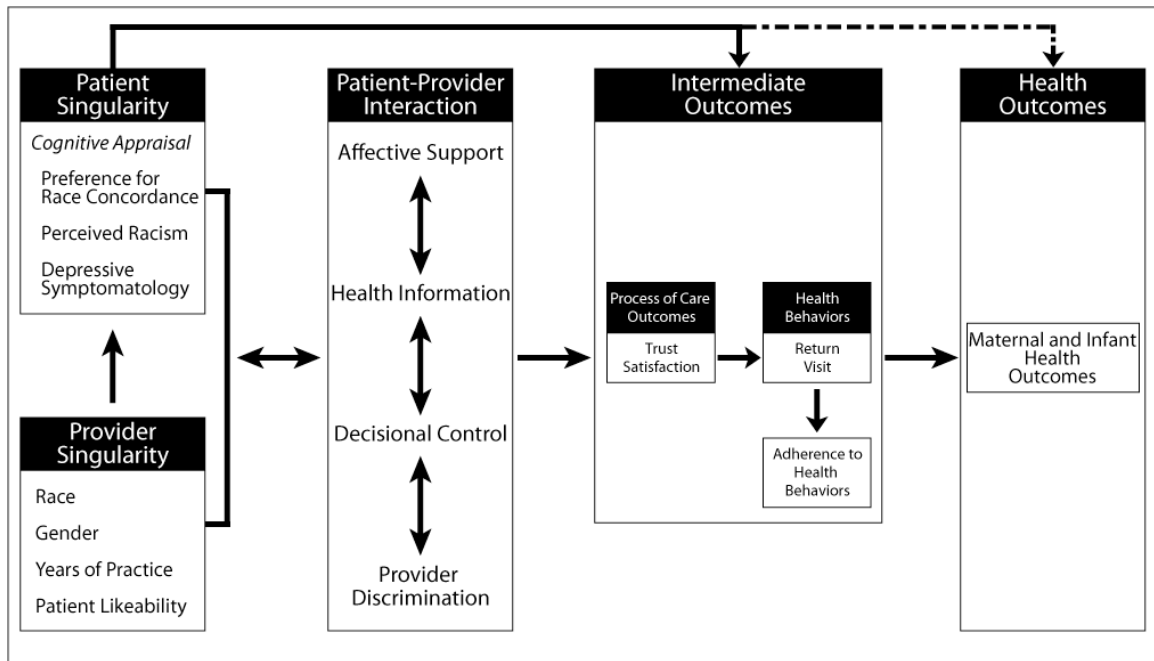


Figure 3.1      Boxplot of Random Variation Within and Between Providers for Outcome Variable of Trust

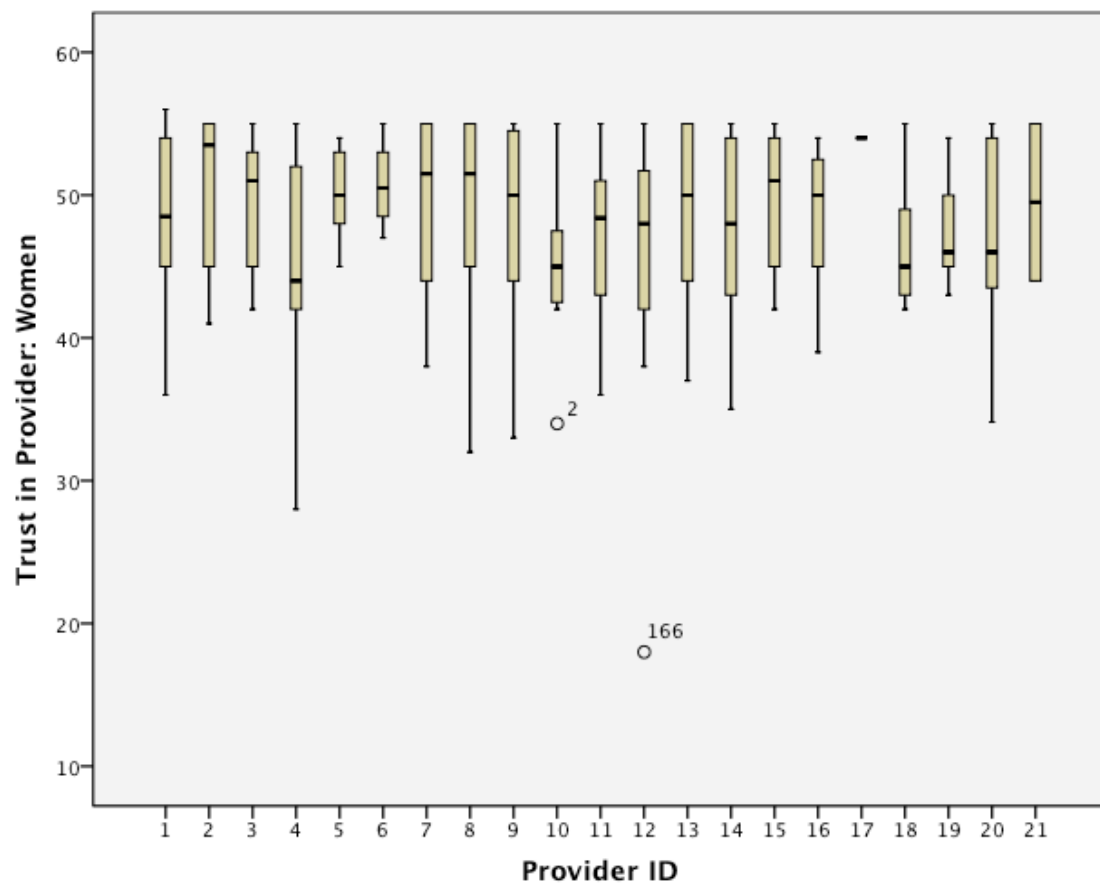
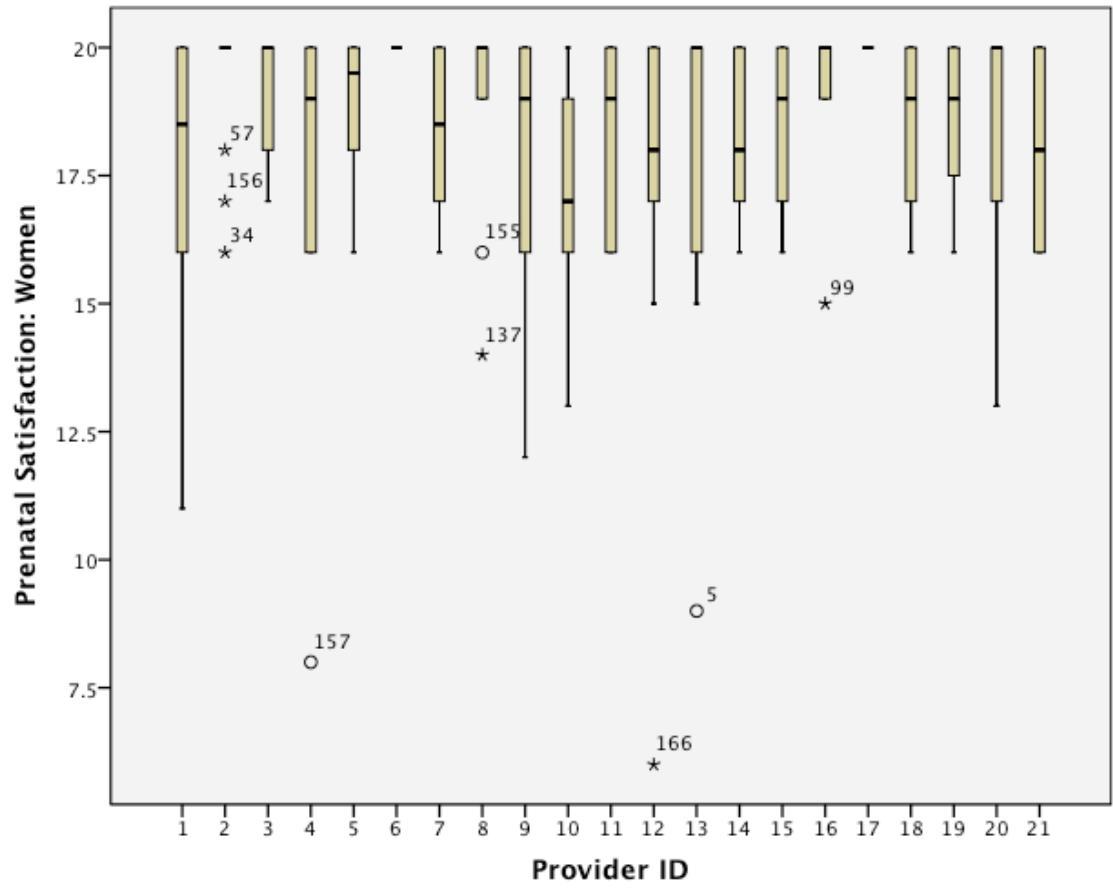


Figure 3.2      Boxplot of Random Variations Between and Within Providers for Outcome Variable of Prenatal Care Satisfaction



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## **TABLES**



Table 3.1 Correspondence of Theoretical Concepts and Empirical Measures for Women

Theoretical Concepts from IMCHB	Empirical Measures	Type of Response	$\alpha$
<i>Patient Singularity</i>			
Preference for Race Concordance	B1. If you had to choose, would you prefer to be treated by a doctor of your own race or ethnic group?	Yes, No, Does not matter	na*
Perceived Racism	<p>C1. African American women experience negative attitudes when they go to a White doctor's office.</p> <p>C2. Doctors treat African American and White women the same.</p> <p>C3. Racism is a problem in my life.</p> <p>C4. A pregnant White woman is treated with more respect than a pregnant African American woman.</p> <p>C5. I am not affected by discrimination.</p> <p>C6. Sometimes if you are African American in a White doctor's office it's as if you don't belong there.</p> <p>C7. Racial discrimination in a doctor's office is common.</p> <p>C8. In most hospitals, African American women and White women get the same kind of care.</p> <p>C9. Doctors and nurses act the same way to White and African American pregnant women.</p> <p>C10. If an African American pregnant woman comes to a doctor's office, it's assumed that she is on welfare.</p> <p>C11. African Americans have the same opportunities as Whites to live a middle class life.</p>	4 point Likert scale of Strongly Disagree to Strongly Agree	.87

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C12. People in power listen more to Whites than African Americans

C13. If an African American woman and a White woman are applying for the same job they have the same chance of being hired.

C14. There has been significant progress in ending racism.

C15. A White woman has more educational opportunities than an African American woman.

C16. African American women get pregnant to receive more welfare benefits.

C17. African American woman can receive the care they want as equally as White women.

C18. Judges are harder on African Americans than Whites.

C19. African American pregnant woman have fewer choices for health care.

C20. People in power listen more to African Americans than Whites.

Depressive  
Symptomatology

D1. I was bothered by things that don't usually bother me.

0-3 point scale, .85  
"on how often  
you have felt  
this way during  
the past week"

D2. I did not feel like eating; my appetite was poor.

D3. I felt that I could not shake off the blues even with help from my family or friends.

D4. I felt that I was just as good as other people.

D5. I had trouble keeping my mind on what I was doing.

D6. I felt depressed.

D7. I felt that everything I did was an effort.

D8. I felt hopeful about the future.

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- D9. I thought my life had been a failure.  
D10. I felt fearful.  
  
D11. My sleep was restless.  
  
D12. I was happy.  
  
D13. I talked less than usual.  
  
D14. I felt lonely.  
  
D15. People were unfriendly.  
  
D16. I enjoyed life.  
  
D17. I had crying spells.  
  
D18. I felt sad.  
  
D19. I felt that people disliked me.  
  
D20. I could not get "going."

*Patient-Provider*

*Interaction*

Affective Support	E1. The doctor greeted me in a way that made me feel comfortable.	5pt Likert scale of Strongly Disagree to Strongly Agree	.89
	E3. The doctor encouraged me to express my thoughts concerning my pregnancy.		
	E4. The doctor did <i>NOT</i> listen carefully to what I had to say.		
	E5. The doctor did <i>NOT</i> understood what I had to say.		
	E12. The doctor encouraged me to ask questions.		
	E17. The doctor did <i>NOT</i> show care and concern about me as a person.		
	E18. The doctor did <i>NOT</i> spend		

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Health Information	<p>enough time with me.</p> <p>E2. The doctor discussed my reason for coming today.</p> <p>E6. If a physical examination was done, the doctor fully explained what was done and why.</p> <p>E7. The doctor explained the tests, if needed (e.g. lab draws, ultrasound, etc), for my pregnancy.</p> <p>E9. The doctor gave me as much information as I wanted.</p> <p>E11. If I needed medications, the doctor discussed possible side effects.</p> <p>E13. The doctor responded to my questions and worries.</p> <p>E16. The doctor checked to be sure I understood everything.</p>	5pt Likert scale of Strongly Disagree to Strongly Agree	.90
	<p>Decisional Control</p> <p>E8. The doctor did <i>NOT</i> discuss treatment choices with me.</p> <p>E10. The doctor checked to see if the treatment plan(s) was ok with me.</p> <p>E14. The doctor involved me in decisions as much as I wanted</p> <p>E15. The doctor did <i>NOT</i> discuss the next steps including any follow-up plans</p>		
Patient-Provider Communication	Composite score for affective support, health information, and decisional-control	5pt Likert scale of Strongly Disagree to Strongly Agree	.95
Provider Discrimination	E19. The doctor treated me with respect and dignity.	5pt Likert scale of Strongly Disagree to Strongly Agree	.83
	E20. The doctor treated me fairly.	5pt Likert scale of Strongly Disagree to Strongly Agree	

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E22. did you feel you were treated with less courtesy than other people?

Disagree to  
Strongly Agree  
Stem:  
During your  
most recent  
interaction....  
(yes/no)

E23. did you feel you received poorer service than others?

E24. did you feel if your doctor acted as if he/she thinks you are not smart?

E25. did you feel if your doctor acted as if he or she is better than you?

E26. did you feel if the doctor was not listening to what you were saying?

E27. What do you think was the MAIN reason for this/these experience(s)?

1. Your ancestry or national origins
2. Your gender
3. Your Race
4. Your Age
5. Your height or weight
6. Your shade of skin color
7. Your insurance
8. Your education
9. Your marital status
10. The number of children you have
11. Other \_\_\_\_\_

Process of Care: Trust in Provider	F1. My doctor is considerate of my needs and puts them first.	5pt Likert scale of Strongly Disagree to Strongly Agree	.89
	F2. I doubt that my doctor really cares about me as a person.		
	F3. I trust my doctor enough to try and follow his/her advice.		
	F4. If my doctor tells me something is so, then it must be true.		
	F5. I sometimes distrust my doctor's opinions and would like a second one.		
	F6. I trust my doctor's judgments about my pregnancy.		
	F7. I feel my doctor does not do everything he/she should about my pregnancy.		
	F8. I trust my doctor to put my pregnancy needs above all other considerations when caring for me.		
	F9. My doctor is well qualified to manage my pregnancy.		
	F10. I trust my doctor to tell me if a mistake was made about my treatment.		
	F11. I sometimes worry that my doctor may not keep the information we discuss totally private.		
Process of Care: Prenatal Care Satisfaction	G1. The doctor talked to me about things that were important to me.	5pt Likert scale of Strongly Disagree to Strongly Agree	.87
	G2. Overall, I am satisfied with our communication during the visit.		
	G3. I would <i>NOT</i> recommend my prenatal doctor to a friend.		
	G4. Overall, I was satisfied with this prenatal visit today.		
<i>Adherence to Prenatal Health Behaviors</i>			
Provider Treatment Recommendations	1. Labs/tests	H1. What did your doctor	na*
	a. prenatal labs		

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- 
- b. ultrasound
  - c. other \_\_\_\_\_
  -

recommend for  
you to do to  
better take care  
of yourself  
and the baby  
today?  
Circle ALL  
answers that  
apply to YOU  
and fill in the  
blank.

- 2. Risky Behaviors
  - a. Stop smoking
  - b. Stop drinking alcohol
  - c. Stop using drugs
- 3. Take Prenatal vitamins or other supplements
- 4. Talk to the social worker
- 5. Return for next prenatal visit
- 6. Sexual Health
  - a. Use condoms
  - b. Avoid Sex
  - c. Other \_\_\_\_\_
- 7. Diet
  - a. Eat healthy foods
  - b. What kind?
  - c. Amount?
- 8. Exercise
  - a. What kind?
  - b. How often?
- 9. No recommendation
- 10. Other \_\_\_\_\_

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\*na= not applicable

Table 3.2 Correlations for Patient-Provider Interaction Variables (n = 188)

	1	2	3	4
Affective Support	--			
Health Information	.86*	--		
Decisional-Control	.80*	.84*	--	
Provider Discrimination	-.39*	-.35*	-.31*	--

\*correlation is significant at  $p < .01$  (two-tailed)

Table 3.3 Correspondence of Theoretical Concepts and Empirical Measures for Providers

Theoretical Concepts from IMCHB	Empirical Measures	Type of Response	$\alpha$
<i>Provider Singularity</i>			
Race	PA1. Race/ethnicity: a. African American b. Arab American c. Asian d. Hispanic e. White f. Other _____		na
Gender	Male or Female		na
Years in Practice	In years		na
Patient Likability	PB21. All in all, I like this patient alot.		na
<i>Patient-Provider Interaction</i>			
Affective Support	PB1. I greeted the patient in a way that made them feel comfortable.  PB3. I encouraged the patient to express her thoughts concerning her	5pt Likert scale of Strongly Disagree to Strongly Agree	.86



	pregnancy.		
	PB4. I did <i>NOT</i> listen carefully to what the patient had to say.		
	PB5. I did <i>NOT</i> understand what the patient had to say.		
	PB12. I encouraged the patient to ask questions.		
	PB17. I did <i>NOT</i> show care and concern about the patient as a person.		
	PB18. I did <i>NOT</i> spend enough time with the patient.		
Health Information	PB2. I discussed the patient's reason(s) for coming today.	5pt Likert scale of Strongly Disagree to Strongly Agree	.89
	PB6. If a physical examination was required, I explained what was done and why.		
	PB7. I explained the tests, if needed (eg. lab draws, ultrasound), for her pregnancy.		
	PB9. I gave the patient as much information as she wanted.		
	PB11. I explained medications, if any, including possible side-effects		
	PB13. I responded to the patient's questions and worries.		
	PB16. I checked to be sure the patient understood everything.		
Decisional-Control	PB10. I checked with the patient to see if the treatment plan (s) was acceptable.	5pt Likert scale of Strongly Disagree to Strongly Agree	.78
	PB14. I involved the patient in decisions as much as she wanted.		
Provider Perception of Non-discriminatory treatment	PB19. I treated the patient with respect and dignity.	5pt Likert scale of Strongly Disagree to Strongly Agree	.78
	PB20. I treated the client fairly.		
<i>Intermediate Outcome</i>			
Process of Care: Trust in Provider	PC1. I feel that this client trusts me.		na*
Process of Care: Prenatal Care Satisfaction	PD1. Overall, I was satisfied with this visit today.		na*

*Adherence to Prenatal  
Health Behaviors*

Provider Treatment Recommendations	1.	Labs/tests a. prenatal labs b. ultrasound c. other _____	PE1. What were my treatment recommendatio n(s) for this patient today?	na*
	2.	Risky Behaviors a. Stop smoking b. Stop drinking alcohol c. Stop using drugs		
	3.	Take Prenatal vitamins or other supplements		
	4.	Talk to the social worker		
	5.	Return for next prenatal visit		
	6.	Sexual Health a. Use condoms b. Avoid Sex c. Other _____		
	7.	Diet a. Eat healthy foods b. What kind? c. Amount?		
	8.	Exercise a. What kind? b. How often?		
	9.	No recommendation		
	10.	Other _____		

Table 4.1 Women's Demographic Characteristics (N = 189\*)

Characteristic	<i>n</i>	%
Occupation		
Student	57	28.0
Work full time	33	16.2

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Characteristic	<i>n</i>	%
Work part time	18	8.8
Unemployed	81	39.7
Marital Status		
Single	161	79.0
Married	22	10.8
Divorced/separated	3	1.5
Widow	1	0.5
Education		
Some high school	54	26.5
High school graduate/GED	74	36.3
Some college	55	27.0
College graduate	6	2.9
Insurance		
Medicaid	176	86.3
Private	8	3.9
No insurance	3	1.5
Average Annual Income		
<\$10,000	93	45.6
\$10,000-\$25,000	60	29.4
\$25,000-\$50,000	20	9.8
\$50,000-\$75,000	2	1.0

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Characteristic	<i>n</i>	%
>\$75,000	2	1.0
Number of Living Children		
0	48	26.0
1	53	28.0
2	38	20.0
3 or more	46	25.0
Self Reported Health Status		
Excellent	29	14.2
Very good	63	30.9
Good	75	36.8
Fair	19	9.3
I am living....		
alone	28	13.7
with family	120	58.8
with significant other	40	19.6
Gestation by Trimester		
First trimester (4-12 weeks)	99	53.2
Second trimester (13-28 weeks)	72	39
Third trimester (29-40 weeks)	15	8

\*Due to missing data, the total number of responses do not add up to 189

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## Women's Demographic Characteristics Continued

Characteristics	Range	Mean ( <i>SD</i> )
Age in years ( <i>n</i> = 189)	17-41	24.42 (4.89)
Gestation in weeks ( <i>n</i> =186)	4-38	14.86 (7.95)

Table 4.2      Provider Demographics (n=21\*)

Characteristic	<i>n</i>	%
Provider Gender		
Female	17	81
Male	4	19
Provider Race		
African American	5	24
Arab American	2	10
Asian	5	24
White	6	29
Other	1	5
Provider Age		
26-30	6	60
31-35	4	26.7
>35	2	13.3
	Range (years)	Mean ( <i>SD</i> )
Provider Years of Practice	0.1-27	3.26(5.62)

\*Due to missing data, the total number of responses do not add up to 21

Table 4.3 Descriptives for Scaled Intermediate Outcomes, Patient Singularity, and Patient-Provider Interaction Variables for Women

Measure	N	Range	Mean (SD)	# of scale items	$\alpha$
Intermediate Outcome					
Trust in Provider	189	18-55	48.00 (6.30)	11	.89
Prenatal Care Satisfaction	189	6-20	18.29 (2.36)	4	.87
Patient Singularity					
Perception of racism	187	23-57	38.21 (7.77)	20	.87
Depressive Symptomatology	188	0-60	15.08 (9.33)	20	.85
Patient-Provider Interaction					
Patient-Provider Communication	188	18-90	81.68 (10.43)	18	.95
Provider Discrimination	184	7-14	7.12 (0.62)	7	.83

Table 4.4 Descriptives for Scaled Intermediate Outcomes and Patient-Provider Interaction Variables for Providers

Measure	N	Range	Mean (SD)	# of scale items	$\alpha$
Intermediate Process of Care Outcomes					
Perception of Patient Trust	149	1-5	4.43 (0.72)	1	
Prenatal Visit Satisfaction	149	1-5	4.50 (0.72)	1	
Patient-Provider Interaction					
Patient-Provider Communication	152	54-90	84.00 (6.90)	18	.93
Perception of Provider Discrimination	151	6-10	9.47 (.99)	2	.76



Table 4.5      Frequencies of Adherence to Prenatal Health Behavior Measures based on Women's Self-Report at Return Visit

Adherence Variables	Women's Responses (N=153) (n)	Percentage of Women's Adherence (N=153) (%)
Prenatal labs	122	94
Ultrasound	96	93
Stop Smoking	57	95
Stop Drinking Alcohol	27	85
Stop Using Drugs	21	86
Take Prenatal Vitamins	83	100
See a Social Worker	39	54
Use Condoms	41	93
Avoid Sex	12	100
Eat Healthy foods	99	100
Exercise	27	100

Table 4.6      Providers Responses on What Providers had Recommended for Each Woman after the Initial Prenatal Visit (N= 129)\*

	n	(%)
Prenatal Health Behaviors		
Prenatal labs	114	88
Ultrasound	77	60
Stop Smoking	36	28
Stop Drinking Alcohol	10	7.8
Stop Using Drugs	15	9.8
Take Prenatal Vitamins	107	82.9
See a Social Worker	24	18.6
Use Condoms	2	1.6
Avoid Sex	3	2.3
Eat Healthy foods	29	22.5
Exercise	5	3.9

\*based on the number women who returned for their subsequent prenatal visit

Table 4.7 Multiple Linear Regression Analysis Summary for Patient Singularity Variables in Predicting Trust in Provider

Measures				
Patient Singularity	b	SE b	$\beta$	<i>p value</i>
Constant	58.73	2.18		
Preference to race concordance	-4.26	3.01	-0.10	.16
Depressive Symptomatology	0.68	3.01	0.04	.53
Perception of Racism	-0.28	0.06	<b>-0.35</b>	<b>&lt;.001</b>
Full Model: $F(3, 182) = 9.58, p < .001$ ; <i>Adjusted R</i> <sup>2</sup> for Trust in Provider = .12				

Table 4.8 Multiple Linear Regression Analysis Summary for Patient Singularity Variables in Predicting Prenatal Care Satisfaction

Measures				
Patient Singularity	b	SE b	$\beta$	<i>p value</i>
Constant	21.30	0.85		
Preference to race concordance	0.15	1.17	0.01	.90
Depressive Symptomatology	0.18	.43	0.03	.67
Perception of Racism	-0.08	0.02	<b>-0.26</b>	<b>&lt;.001</b>
Full Model: $F(3, 182) = 4.39, p = .005$ ; <i>Adjusted R</i> <sup>2</sup> for Prenatal Care Satisfaction = .05				

Table 4.9 Logistic Regression Analysis of Patient Singularity Predicting Return Visit (N=186)

Measures				
Patient Singularity	$\beta$ (SE)	OR	<i>p</i> <i>value</i>	95% CI
Constant	1.16 (1.65)	3.18	.48	
Preference to race concordance	0.37 (1.18)	1.44	.76	0.14-14.54
Depressive Symptomatology	0.25 (0.46)	1.26	.58	0.52-3.15
Perception of Racism	-0.01 (0.03)	0.99	.82	0.95-1.04
Full Model: $\chi^2$ (3, N=186) = .283, $p$ = .963; Nagelkerke $R^2$ : .004; Cox & Snell $R^2$ : .003				

Table 4.10 Logistic Regression Analysis of Patient Singularity Predicting Prenatal Labs (N=119)

Measures				
Patient Singularity	$\beta$ (SE)	OR	<i>p</i> <i>value</i>	95% CI
Constant	-24.47 (40192.96)	0.00	1.00	
Preference to race concordance	24.77 (40192.96)	5.72e <sup>10**</sup>	1.00	0.00-infinity
Depressive Symptomatology	0.47 (1.19)	1.60	.70	0.15-16.49
Perception of Racism	0.07 (0.07)	1.08	.26	0.95-1.23
Full Model: $\chi^2$ (3, N=152) = 8.18, $p$ < .05*; Nagelkerke $R^2$ : .22; Cox & Snell $R^2$ : .07				

\*Full model significant, but individual predictors were not significant

\*\*Extremely large odds ratio

Table 4.11 Logistic Regression Analysis of Patient Singularity Predicting Ultrasounds (N=97)

Measures				
Patient Singularity	$\beta$ (SE)	OR	<i>p</i> value	95% CI
Constant	21.74 (40192.96)	2.77e <sup>9</sup>	1.00	
Preference to race concordance	-19.04 (40192.96)	0.00	1.00	0.00-infinity
Depressive Symptomatology	0.06(0.85)	1.06	.94	0.20-5.65
Perception of Racism	-0.01(0.05)	0.99	.78	0.90-1.08
Full Model: $\chi^2$ (3, N=97) = 0.30, $p$ = .96; Nagelkerke $R^2$ : .006; Cox & Snell $R^2$ : .003				

Table 4.12 Logistic Regression Analysis of Patient Singularity Predicting Prenatal Vitamins (N=85)

Measures				
Patient Singularity	$\beta$ (SE)	OR	<i>p</i> value	95% CI
Constant	24.73 (40192.97)	5.48e <sup>10</sup>	1.00	
Preference to race concordance	-0.14 (41630.06)	0.87	1.00	0.00-infinity
Depressive Symptomatology	-17.82 (10843.77)	0.00	1.00	0.00-infinity
Perception of Racism	-0.08(0.10)	0.93	.43	0.76-1.13
Full Model: $\chi^2$ (3, N=85) = .71, $p$ = .87; Nagelkerke $R^2$ : .08; Cox & Snell $R^2$ : .02				

Table 4.13 Multiple Linear Regression Analyses Summary of Patient-Provider Interaction Variables in Predicting Trust in Provider

Measures				
Patient-Provider Interaction	b	SE b	$\beta$	<i>p</i> value
Patient-Provider Communication (PPC)	0.45	0.03	<b>0.75</b>	<b>&lt;.001</b>
Provider Discrimination	-0.14	1.34	-0.01	.92
Full Model: $F(2,181)=119.02, p < .001$ ; <i>Adjusted R</i> <sup>2</sup> for Trust in Provider = .56				

Table 4.14 Multiple Linear Regression Analyses Summary of Patient-Provider Interaction Variables in Predicting Prenatal Care Satisfaction

Measures				
Patient-Provider Interaction	b	SE b	$\beta$	<i>p</i> value
Patient-Provider Communication (PPC)	0.18	0.01	<b>0.81</b>	<b>&lt;.001</b>
Provider Discrimination	-0.73	0.42	-0.08	.08
Full Model: $F(2,181)=217.16, p < .001$ ; <i>Adjusted R</i> <sup>2</sup> for Prenatal Care Satisfaction = .71				

Table 4.15 Logistic Regression Analysis of Patient-Provider Interaction Variables Predicting Return Visit (N=184)

Measures				
Patient-Provider Interaction	$\beta$ (SE)	OR	<i>p value</i>	95% CI
Patient-Provider Communication	-0.01(0.02)	0.99	.66	0.95-1.03
Provider Discrimination	-0.04(0.85)	0.96	.96	0.20-5.07
Full Model: $\chi^2$ (2, N=184) = 0.24, $p = .89$ ; Nagelkerke $R^2$ : .002; Cox & Snell $R^2$ : .001				

Table 4.16 Logistic Regression Analysis of Patient-Provider Interaction Variables Predicting Prenatal Labs (N=117)

Measures				
Patient-Provider Interaction	$\beta$ (SE)	OR	<i>p value</i>	95% CI
Patient-Provider Communication	-.09 (0.09)	0.92	.32	0.77-1.09
Provider Discrimination	-16.95 (13797.56)	0.00	1.00	0.00- infinity
Full Model: $\chi^2$ (2, N=117) = 2.06, $p = .36$ ; Nagelkerke $R^2$ : .06; Cox & Snell $R^2$ : .02				

Table 4.17      Logistic Regression Analysis of Patient-Provider Interaction Variables  
Predicting Ultrasounds (N=97)

Measures				
Patient-Provider Interaction	$\beta$ (SE)	OR	<i>p value</i>	95% CI
Patient-Provider Communication	0.00(0.03)	1.00	.93	0.94-1.07
Provider Discrimination	0.90(1.37)	2.47	.51	0.17-35.94
Full Model: $\chi^2$ (2, N= 97) = 0.58, $p = .75$ ; Nagelkerke $R^2$ : .01; Cox & Snell $R^2$ : .006				

Table 4.18      Logistic Regression Analysis of Patient-Provider Interaction Variables  
Predicting Prenatal Vitamins (N= 84)

Measures				
Patient-Provider Interaction	$\beta$ (SE)	OR	<i>p value</i>	95% CI
Patient-Provider Communication	0.06 (0.07)	1.06	.40	0.92-1.23
Provider Discrimination	-18.79 (17049.78)	0.00	1.00	0.00-infinity
Full Model: $\chi^2$ (2, N=84) = 0.89, $p = .64$ ; Nagelkerke $R^2$ : .01; Cox & Snell $R^2$ : .05				



Table 4.19 Correlations and Group Differences in Patient-Provider Interaction, Trust, and Prenatal Care Satisfaction Scores between Providers and Women (N=150)

Measures	Women- Provider <i>r</i>	Women Mean ( <i>SD</i> )	Provider Mean ( <i>SD</i> )	Women- Provider Difference ( <i>SD</i> )	Women- Provider Paired Sample <i>df</i>	<i>t</i>
Patient- Provider Communication	0.05	4.53 (0.61)	4.66 (0.38)	0.13 (0.70)	151	2.35*
Provider Discrimination	-0.02	4.68 (0.58)	4.73 (0.49)	0.05 (0.77)	149	0.80
Trust in Provider	0.05	4.38 (0.60)	4.43 (0.72)	0.05 (0.91)	148	0.70
Prenatal Care Satisfaction	0.16	4.57 (0.63)	4.50 (0.72)	-0.07 (0.88)	148	-.95

\*two tailed  $p < .05$

Table 4.20 Kendall Tau b Correlation among Outcome Variables for Women who Returned (N= 153)

	1	2	3	4	5
Trust in Provider	--				
Prenatal Care Satisfaction	.67**	--			
Prenatal Labs	-.11	-.17*	--		
Ultrasounds	.04	.00	-.05	--	
Prenatal Vitamins	.00	.03	-.02	-.07	--
Return Visit	--	--	--	--	--

Two-tailed \* $p < .05$ ; \*\* $p < .01$

Table 4.21 Logistic Regression Model of Individual Scales of Trust in Provider and Prenatal Care Satisfaction in Predicting Return Visits (N=189)

Measures				
Intermediate Outcomes	$\beta$ (SE)	OR	$p$ value	95% CI
Trust in Provider	.13 (.05)	1.14	.006	1.04-1.25
Prenatal Care Satisfaction	-.39 (.15)	.68	.007	.51-.90
Full Model: $\chi^2$ (2, N=189) = 8.91, $p = .01$ ; Nagelkerke $R^2$ : .07; Cox & Snell $R^2$ : .05				

Table 4.22 Logistic Regression Model of Individual Scales of Trust in Provider and Prenatal Care Satisfaction in Predicting Prenatal Labs (N= 120)

Measures				
Intermediate Outcomes	$\beta$ (SE)	OR	$p$ value	95% CI
Trust in Provider	.09 (.16)	1.10	.56	.81-1.50
Prenatal Care Satisfaction	-15.23 (1901.44)	.00	.99	0.00-infinity
Full Model: $\chi^2$ (2, N=120) = 7.13, $p = .03$ ; Nagelkerke $R^2$ : .20; Cox & Snell $R^2$ : .06				

Table 4.23 Logistic Regression Model of Individual Scales of Trust in Provider and Prenatal Care Satisfaction in Predicting Ultrasounds (N=98)

Measures				
Intermediate Outcomes	$\beta$ (SE)	OR	<i>p</i> <i>value</i>	95% CI
Trust in Provider	.16 (.10)	1.17	.10	.97-1.42
Prenatal Care Satisfaction	-.41 (.28)	.66	.14	.39-1.14
Full Model: $\chi^2$ (2, N=98) = 2.69, $p$ = .26; Nagelkerke $R^2$ : .06; Cox & Snell $R^2$ : .03				

Table 4.24 Logistic Regression Model of Individual Scales of Trust in Provider and Prenatal Care Satisfaction in Predicting Prenatal Vitamin (N=86)

Measures				
Intermediate Outcomes	$\beta$ (SE)	OR	<i>p</i> <i>value</i>	95% CI
Trust in Provider	-.08 (.23)	.93	.75	.59-1.47
Prenatal Care Satisfaction	.25 (.60)	1.28	.68	.40-4.12
Full Model: $\chi^2$ (2, N=86) = 0.17, $p$ = .92; Nagelkerke $R^2$ : .01; Cox & Snell $R^2$ : .00				

Table 4.25 Logistic Regression Model of Combined scale of Prenatal Care Satisfaction and Trust in Provider in Predicting Prenatal Labs (N=120)

Outcome= Prenatal Labs	$\beta$	SE( $\beta$ )	OR	95% CI
Combined Satisfaction and Trust Scale	-0.15	0.11	0.86	0.70-1.06
Full Model: $\chi^2$ (1, N=120) = 3.15, $p$ = .08; Nagelkerke $R^2$ : .09; Cox & Snell $R^2$ : .03				

Table 4.26 Logistic Regression Model of Combined Scale of Prenatal Care Satisfaction and Trust in Provider in Predicting Ultrasounds (N=98)

Outcome = Ultrasound	$\beta$	SE( $\beta$ )	OR	95% CI
Combined Satisfaction and Trust Scale	0.02	0.04	1.02	0.94-1.09
Full Model: $\chi^2$ (1, N=98) = 0.15, $p$ = .70; Nagelkerke $R^2$ : .003; Cox & Snell $R^2$ : .002				

Table 4.27 Logistic Regression Model of Combined scale of Prenatal Care Satisfaction and Trust in Provider in Predicting Prenatal Vitamin Intake (N=86)

Outcome = Prenatal Vitamins	$\beta$	SE( $\beta$ )	OR	95% CI
Combined Satisfaction and Trust Scale	0.01	0.09	1.01	0.85-1.19
Full Model: $\chi^2$ (1, N=86) = 0.009, $p$ = .92; Nagelkerke $R^2$ : .001; Cox & Snell $R^2$ : .000				

Table 4.28 Logistic Regression Model of Combined Scale of Prenatal Care Satisfaction and Trust in Provider in Predicting Return Visits (N=189)

Outcome = Return visit	$\beta$	SE( $\beta$ )	OR	95% CI
Combined Satisfaction and Trust Scale	0.01	0.02	1.01	0.97-1.05
Full Model: $\chi^2$ (1, N=189) = 0.11, $p$ = .74; Nagelkerke $R^2$ : .001; Cox & Snell $R^2$ : .001				

|

## **APPENDICES**

## Appendix A

### Patient Questionnaires

#### African American Women and Prenatal Care Effect of Client-Provider Interaction

Woman Survey

No. \_\_\_\_\_

*All information that would let someone identify you or your family will be kept private.*

*We will not share your personal information with anyone without your OK.*

*Your responses to this survey are completely **CONFIDENTIAL**. Once you complete the survey, place it in the folder that was provided, and return the folder to the research assistant.*

*You may notice a number on the cover of this survey. This number is your code identification during data analysis so that your personal information is kept confidential.*



*If you want to know more about this study, please call Gina at 734-664-6050.*

**A. Women Demographic Questionnaire:**

**Date:**

The following questions ask some basic information about yourself.

**A1. Current Age:** \_\_\_\_\_

**A2. Zip code of where you live currently:** \_\_\_\_\_

**Please circle your answer.**

**A3. Current Occupation:**

1. student
2. work full time
3. Work part time
4. Unemployed currently

**A4. Current Marital Status:**

1. Single
2. Married
3. Divorced/separated
4. Widow

**A5. Current Social Situation: I am living**

1. Alone
2. With family
3. With significant other

**A6. Highest education completed:**

1. Some high school
2. High school graduate/GED
3. Some college
4. College graduate
5. Postgraduate school

**A8. Insurance:**

1. Medicaid
2. Private
3. No Insurance

**PLEASE GO TO THE NEXT PAGE**



**A7. Average household Income:**

1. <\$10,000
2. \$10,000-\$25,000
3. \$25,000-\$50,000
4. \$50,000-\$75,000
5. >\$75,000

**A9. Number of Living children:**

1. 0
2. 1
3. 2
4. 3
5. 4
6. 5 or more

**A10. Would you say that, in general, your health is....**

1. Excellent
2. Very good
3. Good
4. Fair
5. Poor

**A11. Just before you got pregnant with this baby, how much did you weigh?**

\_\_\_\_\_ pounds

**A12. How tall are you without shoes?**

\_\_\_\_\_ feet

\_\_\_\_\_ inches

**PLEASE GO TO THE NEXT PAGE**

Now, I would like to ask you one question about your preference.

Please mark an "x" that best describes your preference.

	1 Yes	2 No	3 Does not matter
B1. If you had to choose, would you prefer to be treated by a doctor of your own race or ethnic group?			

Put an "x" by the word that BEST tells how you feel about each statement.

	1 Strongly Disagree	2 Disagree	3 Agree	4 Strongly Agree
C1. African American women experience negative attitudes when they go to a White doctor's office.				
C2. Doctors treat African American and White women the same				
C3. Racism is a problem in my life.				
C4. A pregnant White woman is treated with more respect than a pregnant African American woman.				
C5. I am not affected by discrimination.				
C6. Sometimes if you are African American in a White doctor's office it's as if you don't belong there.				
C7. Racial discrimination in a doctor's office is common.				
C8. In most hospitals, African American women and White women get the same kind of care.				

PLEASE GO TO THE NEXT PAGE...

	1	2	3	4
	Strongly Disagree	Disagree	Agree	Strongly Agree
<b>C9. Doctors and nurses act the same way to White and African American pregnant women.</b>				
<b>C10. If an African American pregnant woman comes to a doctor's office, it's assumed that she is on welfare.</b>				
<b>C11. African Americans have the same opportunities as Whites to live a middle class life.</b>				
<b>C12. People in power listen more to Whites than African Americans.</b>				
<b>C13. If an African American woman and a White woman are applying for the same job they have the same chance of being hired.</b>				
<b>C14. There has been significant progress in ending racism.</b>				
<b>C15. A White woman has more educational opportunities than an African American woman.</b>				
<b>C16. African American women get pregnant to receive more welfare benefits.</b>				
<b>C17. African American woman can receive the care they want as equally as White women.</b>				
<b>C18. Judges are harder on African Americans than Whites.</b>				

PLEASE GO TO THE NEXT PAGE...

	1	2	3	4
	Strongly Disagree	Disagree	Agree	Strongly Agree
C19. African American pregnant woman have fewer choices for health care.				
C20. People in power listen more to African Americans than Whites.				

Below is a list of some of the ways you may have *felt or behaved*.

Please indicate how often you have felt this way during the **PAST WEEK**.

Put an "x" in the box.

	0	1	2	3
	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2days)	Occasionally or a moderate amount of time (3-4 days)	Most or All of the time (5-7 days)
D1. I was bothered by things that don't usually bother me.				
D2. I did not feel like eating; my appetite was poor.				
D3. I felt that I could not shake off the blues even with help from my family or friends.				
D4. I felt that I was just as good as other people.				
D5. I had trouble keeping my mind on what I was doing.				
D6. I felt depressed.				

PLEASE GO TO THE NEXT PAGE

	0	1	2	3
	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2days)	Occasionally or a moderate amount of time (3-4 days)	Most or All of the time (5-7 days)
D7. I felt that everything I did was an effort.				
D8. I felt hopeful about the future.				
D9. I thought my life had been a failure.				
D10. I felt fearful.				
D11. My sleep was restless.				
D12. I was happy.				
D13. I talked less than usual.				
D14. I felt lonely.				
D15. People were unfriendly.				
D16. I enjoyed life.				
D17. I had crying spells.				
D18. I felt sad.				
D19. I felt that people disliked me.				
D20. I could not get "going."				

PLEASE GO TO THE NEXT PAGE

Please answer the following questions based on your visit with the doctor today.

Place an "X" that best describes how you feel about the statement.

	1	2	3	4	5
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
E1. The doctor greeted me in a way that made me feel comfortable.					
E2. The doctor discussed my reason for coming today.					
E3. The doctor encouraged me to express my thoughts concerning my pregnancy.					
E4. The doctor did <i>NOT</i> listen carefully to what I had to say.					
E5. The doctor did <i>NOT</i> understand what I had to say.					
E6. If a physical examination was done, the doctor fully explained what was done and why.					
E7. The doctor explained the tests, if needed (e.g. lab draws, ultrasound, etc), for my pregnancy.					
E8. The doctor did <i>NOT</i> discuss treatment choices with me.					
E9. The doctor gave me as much information as I wanted.					

PLEASE GO TO THE NEXT PAGE...

	1	2	3	4	5
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
E10. The doctor checked to see if the treatment plan(s) was ok with me.					
E11. If I needed medications, the doctor discussed possible side effects.					
E12. The doctor encouraged me to ask questions.					
E13. The doctor responded to my questions and worries.					
E14. The doctor involved me in decisions as much as I wanted					
E15. The doctor did <i>NOT</i> discuss the next steps including any follow-up plans					
E16. The doctor checked to be sure I understood everything.					
E17. The doctor did <i>NOT</i> show care and concern about me as a person.					
E18. The doctor did <i>NOT</i> spend enough time with me.					
E19. The doctor treated me with respect and dignity.					
E20. The doctor treated me fairly.					
E21. All in all, I like this doctor a lot.					

PLEASE GO TO THE NEXT PAGE...

During your most recent interaction.... (circle YES or NO)

E22. did you feel you were treated with less courtesy than other people?

Yes	No
2	1

E23. did you feel you received poorer service than others?

Yes	No
2	1

E24. did you feel if your doctor acted as if he/she thinks you are not smart?

Yes	No
2	1

E25. did you feel if your doctor acted as if he or she is better than you?

Yes	No
2	1

E26. did you feel if the doctor was not listening to what you were saying?

Yes	No
2	1

If you answered NO to ALL the questions from E22 through E26,  
please GO TO THE NEXT PAGE.

If you answered YES to ANY question from E22 through E26,  
please GO TO QUESTION E27.

E27. What do you think was the MAIN reason for this/these experience(s)?  
Would you say ....? (circle the number or fill in the blank)

1. Your ancestry or national origins
2. Your gender
3. Your Race
4. Your Age
5. Your height or weight
6. Your shade of skin color
7. Your insurance
8. Your education
9. Your marital status
10. The number of children you have
11. Other \_\_\_\_\_

PLEASE GO TO THE NEXT PAGE...



The following questions ask about your relationship with your doctor you just saw today.

	1	2	3	4	5
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
F1. My doctor is considerate of my needs and puts them first.					
F2. I doubt that my doctor really cares about me as a person.					
F3. I trust my doctor enough to try and follow his/her advice.					
F4. If my doctor tells me something is so, then it must be true.					
F5. I sometimes distrust my doctor's opinions and would like a second one.					
F6. I trust my doctor's judgments about my pregnancy.					
F7. I feel my doctor does not do everything he/she should about my pregnancy.					
F8. I trust my doctor to put my pregnancy needs above all other considerations when caring for me.					
F9. My doctor is well qualified to manage my pregnancy.					

PLEASE GO TO THE NEXT PAGE

	1	2	3	4	5
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
F10. I trust my doctor to tell me if a mistake was made about my treatment.					
F11. I sometimes worry that my doctor may not keep the information we discuss totally private.					

The next set of questions asks about your satisfaction with the doctor and the visit.

	1	2	3	4	5
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
G1. The doctor talked to me about things that were important to me.					
G2. Overall, I am satisfied with our communication during the visit.					
G3. I would <i>NOT</i> recommend my prenatal doctor to a friend.					
G4. Overall, I was satisfied with this prenatal visit today.					

PLEASE GO TO THE NEXT PAGE

H1. What did your doctor recommend for you to do to better take care of yourself and the baby today? Circle ALL answers that apply to YOU and fill in the blank.

1. Labs/tests

- a. prenatal labs
- b. ultrasound
- c. Other \_\_\_\_\_

2. Risky Behaviors:

- a. Stop smoking
- b. Stop drinking alcohol
- c. Stop using drugs

3. Take Prenatal vitamins or other supplements

4. Talk to the social worker

5. Return for next prenatal visit

9. No recommendation

6. Sexual Health

- a. Use condoms
- b. Avoid Sex
- c. Other \_\_\_\_\_

7. Diet:

- a. Eat healthy foods
- b. What kind?  
\_\_\_\_\_
- c. Amount?  
\_\_\_\_\_

8. Exercise

- a. What Kind?  
\_\_\_\_\_
- b. How Often?  
\_\_\_\_\_

10. Other:

\_\_\_\_\_

**Please fill in the blanks**

**1. Write Your Name:**

**2. In case we need to clarify any information and contact you for the follow up information, what is the best telephone number to reach you?**

**Phone Number:**

**Best time to Call:**



**THANK YOU FOR YOUR PARTICIPATION!**

**WE WILL FOLLOW UP WITH YOU ON YOUR NEXT  
PRENATAL VISIT.**

The following questions will be asked in person or via a telephone by the PI or the RA.

1. List the recommendations the woman had circled from the 1st prenatal visit.
2. Ask woman if she remembers doctors recommendations.
3. If she does not remember, use your list to help the woman recall

**I1. On your last prenatal visit, your provider had recommended for you to...**

1st prenatal visit recommendation	Woman's Recall
a.	
b.	
c.	
d.	
e.	

**For each recommendation listed above, ask the following question:**

**I2. Would you say that you followed his/her recommendation....**

- a. All the time
- b. Some of the time
- c. A few times
- d. None of the time

|

## Appendix B

### Provider Questionnaires

African American Women and Prenatal Care  
Effect of Client-Provider Interaction

Provider Survey

No. \_\_\_\_\_

|

*All information that would let someone identify you will be kept private.  
We will not share your personal information with anyone without your OK.*

*Your responses to this survey are completely **CONFIDENTIAL**.  
Once you complete the survey, place it in the folder box in the resident room.*

*You may notice a number on the cover of this survey. This number is your code identification during data analysis so that your personal information is kept confidential.*



*If you want to know more about this study,  
please call Gina at 734-664-6050.*

|

**Provider Demographic**

**PA1. Race/ethnicity:**

- a. African American
- b. Arab American
- c. Asian
- d. Hispanic
- e. White
- f. Other \_\_\_\_\_

**PA2. Age:** \_\_\_\_\_

**PA3. Years of Practice (include your residency):** \_\_\_\_\_



Please answer the following questions based on your most recent patient interaction.

	1	2	3	4	5
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
PB1. I greeted the patient in a way that made them feel comfortable.					
PB2. I discussed the patient's reason(s) for coming today.					
PB3. I encouraged the patient to express her thoughts concerning her pregnancy.					
PB4. I did <i>NOT</i> listen carefully to what the patient had to say.					
PB5. I did <i>NOT</i> understand what the patient had to say.					
PB6. If a physical examination was required, I explained what was done and why.					
PB7. I explained the tests, if needed (eg. lab draws, ultrasound), for her pregnancy.					
PB8. I did <i>NOT</i> discuss treatment options with the patient.					
PB9. I gave the patient as much information as she wanted.					
PB10. I checked with the patient to see if the treatment plan (s) was acceptable.					
PB11. I explained medications, if any, including possible side-effects					
PB12. I encouraged the patient to ask questions.					
PB13. I responded to the patient's questions and worries.					
PB14. I involved the patient in decisions as much as she wanted.					

**PLEASE TURN THE PAGE OVER**

"Patient-provider interaction questionnaire is adapted in part from Matched- Pair Communication Tool with permission from Medical Council of Canada"

	1	2	3	4	5
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
PB15. I did <i>NOT</i> discuss next steps including any follow-up plans.					
PB16. I checked to be sure the patient understood everything.					
PB17. I did <i>NOT</i> show care and concern about the patient as a person.					
PB18. I did <i>NOT</i> spend enough time with the patient.					
PB19. I treated the patient with respect and dignity.					
PB20. I treated the client fairly.					
PB21. All in all, I like this patient alot.					
PC1. I feel that this client trusts me.					
PD1. Overall, I was satisfied with this visit today.					

PE1. What were my treatment recommendation(s) for this patient today?

(Circle ALL that apply and fill in the blanks if needed)

- |   |   |
|---|---|
| <p>1. Labs/tests</p> <p>a. prenatal labs</p> <p>b. ultrasound</p> <p>c. Other _____</p> <p>2. Risky Behaviors:</p> <p>a. Stop smoking</p> <p>b. Stop drinking alcohol</p> <p>c. Stop using drugs</p> <p>3. Take Prenatal vitamins or other supplements</p> <p>4. Talk to the social worker</p> <p>5. Return for next prenatal visit</p> <p>9. No recommendation</p> | <p>6. Sexual Health</p> <p>a. Use condoms</p> <p>b. Avoid Sex</p> <p>c. Other _____</p> <p>7. Diet:</p> <p>a. Eat healthy foods</p> <p>b. What kind? _____</p> <p>c. Amount? _____</p> <p>8. Exercise</p> <p>a. What Kind? _____</p> <p>b. How Often? _____</p> <p>10. Other: _____</p> |
|---|---|

Please place the survey in the box labeled, "Resident Surveys," found in the residents' room.

"Patient-provider interaction questionnaire" developed by the Patient-Provider Communication Tool with permission from Medical Council of Canada"

THANK YOU FOR YOUR PARTICIPATION

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